MAY • 1958

FIREMEN

VOLUME 25, NUMBER 5, COPYRIGHT 1958 NATIONAL FIRE PROTECTION ASSOCIATION PRINTED IN U. S. A.

Are We Ready for Rescue? › › › › Page 8

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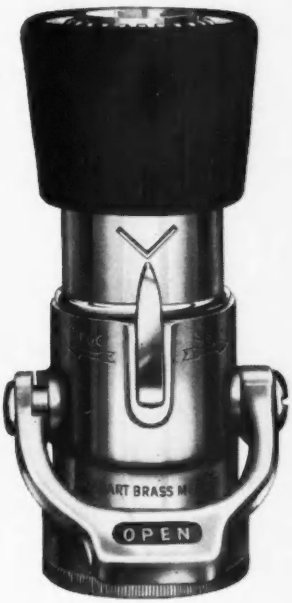

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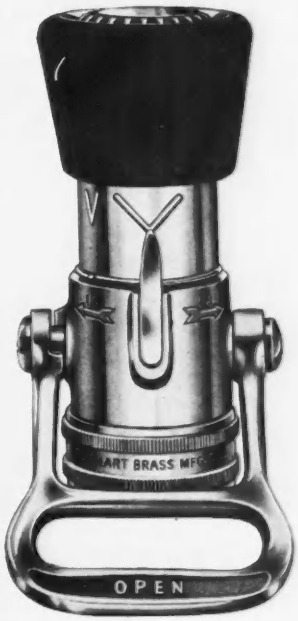

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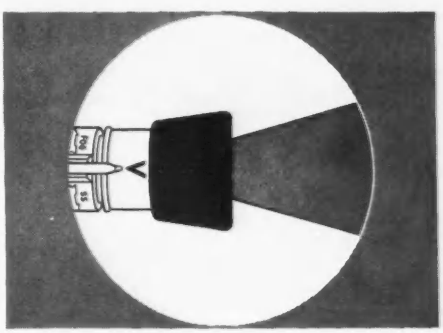

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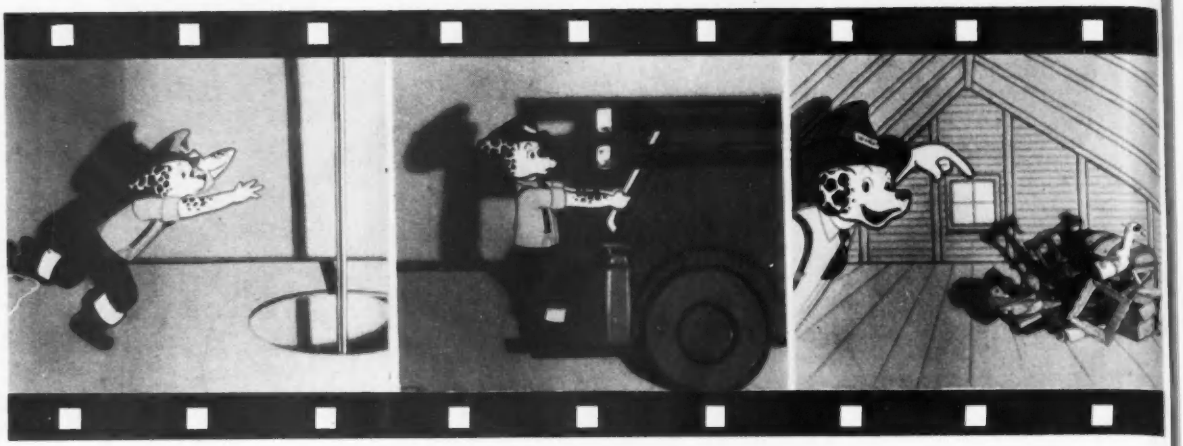
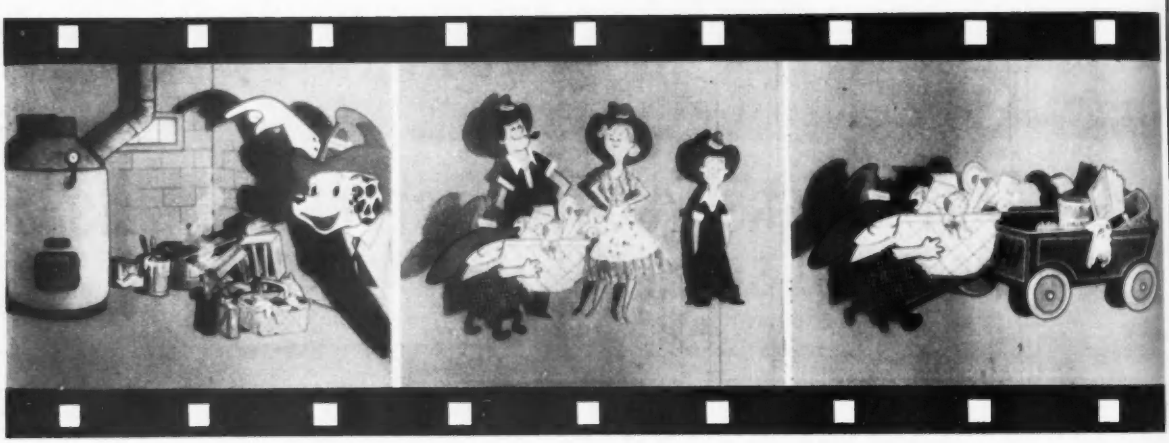
SPARKY'S NEW FILM HIT (Running Time—One Minute)

"CLEAN UP FOR FIRE SAFETY"



Produced especially for television, school and theater! Sparky sings (a brand new song — youngsters will love it) and shows that stopping fires from starting is a family job.



Sparky's Clean Up film is not dated — its message is timely all year-round. This new, useful film is priced low to permit every fire department and fire prevention committee to stock several 16 and 35 mm prints for loan to all possible users: TV stations, service clubs, schools, theaters (35 mm) . . .

FILM DATA

Black and white animation, sound, running time 60 seconds exact without sponsor tag. Cleared for television. Prices per print: 16 mm $5.00; 35 mm $9.75; 10-word sponsor tag $2.00.

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FIREMEN

Volume 25 • Number 5

A monthly magazine published for the fire service members of the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts.

Warren Y. Kimball *Editor*

Paul R. Lyons *Associate Editor*

Henry S. Gere *Advertising Manager*

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Year after year fire sweeps through dwellings of the nation to take a tremendous toll in life and property. In 1957, for example, fire occurred in nearly 600,000 dwellings in the United States and brought death to 6,400 persons. According to the NFPA Fire Record Department, the early months of this year show that the pattern is continuing and the number of fire deaths nearly equals the same period last year. Altogether, there were 11,300 deaths by fire in 1957.

As shown on this month's cover, modern dwellings are not immune to fire disaster. This fire occurred in Wayland, Massachusetts, on May 10 and took the lives of the homeowner and his wife, both elderly people. The nation's fire record shows that, in dwelling fires, 30 percent of the deaths involve children under the age of 15 years, and 20 percent of the fire deaths are persons over 70 years.

Principal factors in home fire deaths are: delayed discovery or rapid spread of fire, inadequate exit facilities, unattended children and physical handicaps of the persons in the buildings. These combine to pose difficult operational problems for the fire department. When apparatus responds either the building is well involved or else heat and smoke have already spread throughout the structure. If children, elderly persons or panic-stricken adults are in the dwelling, fire fighters probably will have to carry them out bodily.

The traditional respect of the fire service for split-second response and action perhaps stems from the tragic record of fires in dwellings, for on so many of these occasions it seems that the margin between a life saved and a life lost can be measured in seconds. The responding fire department must be prepared to make the fastest possible attack, preferably moving in with preconnected 1½-in. lines to protect the persons in the structure and effect quick fire control. One or more fire fighters should be ready with self-contained breathing equipment to make entry for rescue.

One of the serious fire protection weaknesses in many dwellings is the open stairway. Too often, fire burns for some time undetected in the cellar or first floor, then heat and smoke follow the easiest path up through the stairway to the second floor. Non-firestopped wall spaces also contribute to fire spread. Each of these factors can be minimized if fire department personnel will bring them to the attention of home owners. If the head of a household follows the simple procedure of closing all doors when the family retires for the night, those doors may spell the difference between lives saved or lost. Similarly, the firestopping of wall spaces in the basement and attic will slow the progress of fire.

This serious record of fire in dwellings prompted the NFPA to issue a new booklet, "The Fire Safe Home," announced in last month's issue ($5 per 100 copies, $35 per 1,000). It was prepared especially to advice home owners on simple but practical fire protection measures, including fire stopping, fire escape plans, electric wiring and other fundamentals.

Year after year many fire chiefs have taken practical steps to improve fire safety in dwellings. They have urged their community officials to adopt ordinances which follow the recommendations of the standards in the National Fire Codes published by NFPA. They have speeded up dwelling inspection programs to eliminate hazards and encourage families to plan for fire emergencies. They have focused attention on the problem of unattended children who so frequently become victims of fire. All of these activities are vital for fire safety, but the annual toll of fire deaths shows that even more aggressive action is needed.

ARE WE READY FOR RESCUES?

An excellent rescue with pompier ladder was made by these New York City fire fighters. (See October, 1955 NFPA FIREMEN.)

"Workers, perched like frightened wrens on window sills three or four stories above the street, awaited their turns to leap into fire nets.

"Six of the women missed the nets and struck the pavement with sickening impact.

"Firemen on the nets set up a grim production line mechanism. As fast as one woman hit the nets, she was boosted off to make way for the next.

"Bodies of many of the victims lay pitifully close to windows, where the flames had cut them down on the very threshhold of escape."

SO NEWS STORIES described a 5-story factory blaze that took 24 lives. A preliminary report on this fire was in the April, 1958 NFPA *Fire News*.

Despite the self-sacrifice and almost superhuman efforts of fire fighters, there will be loss of life as long as persons work or are housed in "fire-trap" buildings. Not many persons realize the emotional and physical strain that the fire fighter undergoes when a life or lives are lost despite heroic rescue efforts. We recall the remarks of an old fire chief who was trying to console a distraught fire lieutenant who had come within inches of making a rescue only to have the woman lose her life: "Lieutenant, you did your best, but they lost them before we were here and will lose them after we're gone."

After each fire tragedy, it is good to look at our fire defenses and see what we can do when confronted by a similar situation. One of the great problems is manpower, particularly in early stages when rescues must be made. Is our ladder truck response as good as it should be, and are the trucks properly manned? What are the locations where people may have to be taken out of windows? Do we have workable plans for getting these people to safety?

Are we doing enough training with the longer ground ladders that require skilled teamwork? In many departments, unfortunately, there are not enough men on the truck company to man 45- or 50-ft. extension ladders without the help of hose crews who should be getting water on the fire. This is especially true for the old, heavy, wooden ladders. Aluminum ladders are lighter and can be handled by fewer men.

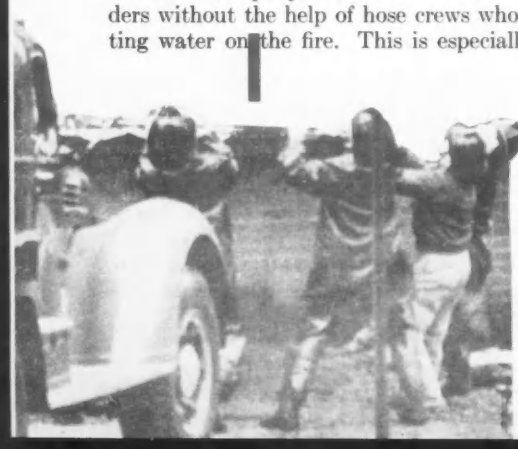
A standard ladder complement includes two 35-ft. extensions for getting persons out of the third floor or low fourth floors, and one 50-ft. ladder capable of reaching persons on fourth and fifth floors out of reach of aerials. Some departments that have frequent rescue problems carry additional ladders. For example, in Boston, Chief Leo C. Driscoll has specified a 40-ft. aluminum extension for busy ladder companies. Four men can raise this easily and the ladder is particularly valuable for buildings with a high first floor.

Now would be a good time for every fire department to check its life nets and make necessary replacements. Generally, it takes crews of two fire companies, aided by police and civilians, to hold a net for a drop of more than two or three stories, and usually when nets are used, the ratio of injuries is fairly high.

People often jump before a life net is properly positioned under them. That is understandable if "fire is at their tails," but the fire officer must anticipate this. Most departments prefer a ladder rescue to use of nets if at all possible. Often lightpoles, hydrants, curbs, fences and areaways make proper placing of a net impossible but a ladder can be used. After all, it takes less men to make ladder rescues, and a net cannot be safely used for a drop much greater than 50 feet.

If rescue must be made from the outside above a 50-ft. ladder (where an aerial cannot be used) the pompier ladder can be used. The men making the rescue should wear pompier belts with hooks for hooking into the pompier and, also, for getting people down lifelines. However, frequent practice with this equipment is essential.

One other fact to keep in mind is that many fire fighters have been hurt in practice jumps into life nets. Fire fighters seldom have to leap into nets and need more practice in holding a life net. The best way is to place the left foot forward, net chest high, elbows bent close to the body to take the shock (but do not let elbows drive into ribs or stomach), and eyes watching the jumper. The department should have weighted dummies to throw from windows for net practice. Men holding nets should wear their protective clothing including fire helmets, for they risk serious injury if struck by the jumper or by falling glass.



(Left) St. Louis, Missouri fire fighters used a net to catch a deranged man dropping from the 6th floor, but he suffered a back injury. (FIREMEN for May, 1953.)

DOES TRAINING PAY?

Photos on this page from Fire Service Bulletin of the University of Maryland.

Here is the fire problem that confronted members of the Mt. Airy Volunteer Fire Department when they responded to an alarm. In back of this building is the large cow barn, the roof of which is just starting to blaze. Photo below was taken after the fire and shows that an excellent stop was made of a difficult fire with a close exposure.

USUALLY fire fighters are apt to consider their fire department training sessions as periods of necessary but rather tedious labor. Unless the training is planned and directed by a competent and understanding fire officer, the continual practice of basic hose and ladder evolutions and other fire fighting fundamentals can become monotonous. If a fire company or fire department does not have frequent runs for actual fire calls, it sometimes becomes rather difficult for the men to appreciate the need for these practice routines.

However, actual fire combat provides a fair measure of the thoroughness and extent of training. If the men of the fire company have learned good fire fighting evolutions thoroughly, their actions on the fireground are quick, sure and correct. The job of command becomes easier for the fire officers and the over-all fire fighting operations are professional.

Robert C. Byrus, director, Fire Service Extension, University of Maryland, brought this out in the April issue of the University's *Fire Service Bulletin*. His comments and the photos on this page should be of particular value to members of volunteer fire departments and prove that training does pay!

From the *Fire Service Bulletin*

The pictures above and below, though taken from slightly different angles, show the fine stop made recently by the Mt. Airy firemen under Chief Edward N. Rimbey. In consideration of the distance that the fire apparatus had to travel, plus the fact that water supply was a problem, the stop of this fire is one in which the men can take great pride.

Situations such as this make all the many hours spent in training worth while. It is also accomplishment of quick fire stops such as this that makes the difference between firemen, and members of a fire company. The rapid control of a raging fire involves thoroughly trained men, and leaders who can quickly size up the situation so that the orders given will be the ones that effect speedy suppression. Those connected with the fire service in any way are always pleased to see good jobs of fire fighting such as this. But, perhaps the ones who get the greatest thrill are the men who served as instructors to the firemen who did the good job, and the owner of the property. Mt. Airy is the home company of Mr. C. Oscar Baker, a member of the Firemen's Training Committee of MSFA. The owner of the property was so pleased he sent the following letter of appreciation:

Mt. Airy Vol. Fire Dept.
Mt. Airy, Maryland

Gentlemen:

I would like to take this opportunity to express my appreciation to your organization for your prompt response to the alarm that brought your fire fighting equipment to my farm last Friday night. Your quick action and professional judgment, plus the use of your fine equipment certainly saved the large cow barn on my farm. The loss of this barn would have done considerable damage to the tenant and also would have resulted in thousands of dollars worth of loss to myself. It is a good feeling as a property owner to know that the men and equipment of your organization are available in time of an emergency.

Please accept the enclosed check as a donation to your company and thanks very much for a job well done.

Sincerely,

RAYMOND G. BROWN

Another view of involved building and barn structure. Roof of smaller building has been destroyed but main barn remains intact. *(Photos by Delaine Hobbs)*

Combustible Metal Fires

From an address during the 1958 Fire Department Instructors Conference, Memphis, Tennessee, by Hylton R. Brown, Chairman of the NFPA Committees on Combustible Metals and Dust Explosion Hazards and Senior Engineer, Bureau of Mines, U. S. Department of Interior, Washington, D. C.

THERE are several reasons for our interest in fires that have involved combustible metals in recent years. One is just plain common curiosity. We, who grew up around the blacksmith shop, remember seeing that the iron shoe in the fire did not burn, and it may be hard for us to realize that iron, if it is in finely divided powder form, can form an explosive mixture with air.

Science has also spurred interest. Physicists, metallurgists, chemists and engineers are finding certain combustible metals sources of atomic energy, new rocket fuels and a means of creating combinations of materials with most unusual characteristics. In this field, many of the metals are pyrophoric; that is, they can ignite spontaneously. Some, commonly referred to as alkali metals, may produce violent metal-water reaction. Others present radiation and toxic hazards.

The third reason for interest is practical: the necessity for providing protection for life and property. Operators of industrial plants in which combustible metals are produced or handled want to know how a fire can be prevented. The fire fighters who may respond to a fire in one of these plants want to know how to extinguish it.

Some of the unexplained metal fires reported in recent years may have been caused by spontaneous heating, or through combinations of metals and other materials having certain pyrophoric characteristics.

Now, what are the forms of spontaneous heating, the conditions under which such fires may occur and some of the factors that may cause violent reactions or explosions?

One is the oxidation in air with evolution of heat. This is due to the exposure of large surface area and rapid oxidation which causes heating on the surface of metal or other substances. Then we have microbial thermogenesis — bacterial action. It is a far cry from combustible metal fires to think of microbes and bacterial action causing metal fire, but in the Bureau recently we have undertaken the study of bacterial action on metals, and it is surprising where this field may lead us. The third factor is chemical reaction, and a fourth is the reaction with water.

A number of recent fires and explosions in connection with the production, processing and handling of magnesium, titanium, zirconium, thorium and other metals have been attributed to metal-water reactions. In some instances where finely divided metals or metal powders have been immersed or wet with water, pyrophoric heating, ignitions and explosions have occurred, with apparently no initial preheating and no external source of heat being present.

In January, 1957, the NFPA Committee on Combustible Metals met in New York. We had just opened the session when we got word about a magnesium fire in a nearby Connecticut plant. The section of the plant manufacturing magnesium ladders became involved in a fire which caused damage estimated at about $1 million. The fire department had unusual difficulties in controlling this fire because a large supply of fuel oil in delivery trucks stored in a garage adjacent to the plant was also involved.

Now, in many cases, the extinguishing agents that are suitable for use on flammable liquid fires are not effective on combustible metal fires and result in a serious problem. In some cases the use of the extinguishing agents that are commonly used on flammable liquid fires may even be hazardous on combustible metal fires.

Three serious fires and explosions were reported last year in titanium melting plants. Three lives were lost and 15 persons injured in these fires, and the dollar loss amounted to several million. Although many of the fires and explosions during titanium melting are attributed to arcing of the electrodes, piercing of the wall of the water-jacketed crucible and the formation of steam when water and molten metal meet, investigations of these explosions indicate that there is apparently some other factor. Physicists are beginning to study the possibility of some other form of metal-water reactions, and some studies are being made of the explosives manufactured by powdered metals and water or moistened powder metals.

A recent report of the Atomic Energy Commission described a small metallic plutonium fire, which caused a major property damage loss. The fire occurred in a dry box, and a number of carbon dioxide extinguishers ranging in size to 100-pound units were emptied on the fire without effect. Later a most surprising thing happened; a water spray was applied and proved to be effective in controlling the fire. So we have some unusual cases: where ordinarily water increases the violence of the fire, and where in other cases water may extinguish the fire.

Laboratory investigations are being made to determine the conditions under which combustible metal fires may occur. Apparently, particle size is a very important factor. If you find a plant that is handling finely divided metal powder, you are almost certain to run into some fire and explosion hazards. Dr. Hartmann, of our Bureau of Mines office in Pittsburgh, reports ignitions of uranium powder and the hydrides of uranium and thorium within a few minutes after exposure in air. Zirconium and uranium powder ignited immediately upon dispersion as a cloud in air at room temperature. Some powders can be ignited in carbon dioxide and nitrogen. Dr. Bernard Kopelman reports ignitions of uranium powder under boiling water with the generation of enough heat to melt the glass con-

tainer. Numerous explosions and fires have occurred during laboratory tests while characteristics of combustible metals were being investigated.

Many hazardous reactions with metals have been reported. For example, aluminum powder and carbon tetrachloride in a mixture have caused a fatal explosion.

Spontaneous ignition occurs when aluminum and sodium peroxide are exposed in damp air.

For a mixture of aluminum powder and silver chloride: the reaction may proceed with explosive violence. With magnesium and cupric oxide: a reduction of the oxide with magnesium produces incandescence and a detonation.

For magnesium and silicon dioxide: the reaction between precipitated silicon dioxide and magnesium causes a violent explosion.

Finely divided platinum will cause a mixture of hydrogen and oxygen to explode at ordinary temperature.

Carbon dioxide in any form reacts violently with hot sodium, and sodium forms explosive mixtures with solid carbon dioxide.

Sodium and chlorinated hydrocarbons are explosive mixtures. Concentrated fuming nitric acid has caused an explosive reaction in the laboratory where tests are being conducted with small samples of titanium. Of course zinc powder and sulfur produce explosive reactions when warmed. I think we read recently of some of the youngsters who were using zinc powder and sulfur as rocket fuel, and we know what to expect in that case.

A REVIEW of the conditions under which fires may occur in handling or processing pyrophoric metals shows that no single method of fire prevention or fire protection will be effective in all cases. And likewise, separate treatment of many individual hazards or combinations of hazardous conditions which may exist in handling metals that ignite spontaneously is impossible. However, some general conclusions can be drawn from the data available, and some operating practices that have been found effective in preventing fires can be cited.

One fundamental rule seems to be that pyrophoric materials, which by themselves are subject to spontaneous heating with ignition in air, should be stored and handled under some nonreactive liquid or gas. The alkali metals in the pyrophoric group can, under certain conditions and with special care, be handled in air, but such handling is mostly in the laboratory stage and for a short period.

Sodium, which oxidizes rapidly in air and reacts violently with water, usually is stored under naphtha, kerosene or some liquid that does not contain oxygen, and this method of providing protection against sodium ignition introduces a flammable liquid fire hazard. The additional hazard presents a rather serious problem because so many of these fire extinguishing media suitable for the oil fires are hazardous when used on sodium. No water, foam, soda acid, carbon tetrachloride or carbon dioxide fire extinguishers should be permitted in areas where they may be used inadvertently on sodium fires.

Under such conditions, fire protection is limited to the use of graphite, soda ash or other dry powders suitable for smothering sodium fires and flammable liquid spill fires. Sometimes storage under inert gases such as nitrogen, helium or argon will be found quite satisfactory, and under such storage conditions it is not necessary to provide for the flammable liquid extinguishing equipment.

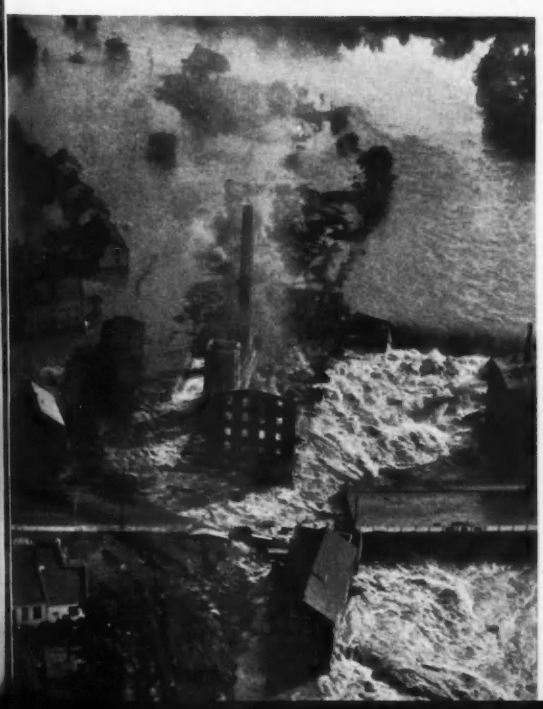
Potassium, which reacts violently with water and may ignite spontaneously in the air, can be stored safely under inert gas protection. Fire control is extremely difficult; graphite soda ash and other dry powders can be used on small fires; ordinary types of extinguishers should be excluded from the areas where their use on potassium fires would be hazardous. Carbon dioxide may form a nonstable or explosive compound used on potassium fires.

Lithium is usually kept under an oxygen-free liquid such as kerosene or toluene, but can be stored safely under inert gases such as helium and argon. Nitrogen, sometimes used to protect sodium or potassium, is not recommended for lithium. Graphite and some other smothering powders can be used to control lithium fires.

Other alkali metals known to be pyrophoric are not widely used, and it is unlikely that you will run into them in fighting fires in industrial plants.

Contaminated materials or mixtures and certain compounds of the alkali metals present some unusual fire and explosion hazards. Information on the different phases of the subject is limited because often the experience reported has been just one of a kind. Nobody wanted to try it the second time.

For specific planned operations, special fire control methods have been devised. Although smothering type extinguishing agents are generally used for fire control, a liquid extinguishing agent recently has given encouraging results in small



(Left) In Putnam, Connecticut, during the floods of 1955, fire involved this 5-story brick warehouse containing magnesium. Floating drums of the magnesium burned and exploded throughout the business district and fire spread to four houses and another storage plant before it was controlled. (Woonsocket *Call* photo — see October, 1955 FIREMEN.)

fires. Trimethoxyboroxine has extinguished fires in some of the alkali metals, and work is progressing on the development of suitable extinguishers to broaden the field in which this product can be used.

Small fires in metal powders can usually be controlled by carefully spreading graphite, dry sand or certain other materials on and around the fire. Sometimes the fire can be surrounded with a ring of inert material and allowed to burn itself out. Extinguishing a metal powder fire, however, can be very dangerous because of the possibility of an explosion if the burning powder is disturbed. These fires cannot be extinguished with water, carbon dioxide, foam or carbon tetrachloride. The use of such extinguishing agents may stimulate the burning or cause an explosion when the extinguisher contents are charged under pressure onto the fire. Extinguishers other than those recommended for metal fires should be excluded from areas where persons unfamiliar with the hazards might use them on burning metal powder.

More specific recommendations for the control of different types of metal powder fires are incorporated in NFPA Standard No. 651 — "Code for the Prevention of Dust Explosions in the Manufacture of Aluminum Bronze Powder" and NFPA Standard No. 652 — "Code for Explosion and Fire Prevention in Plants Producing or Handling Magnesium Powder or Dust."

Use of inert gases such as helium and argon provides the most effective way to prevent ignition of zirconium and titanium during production or processing at elevated temperatures. Arc welding can be conducted under inert gas protection, and some success has been obtained in extinguishing fires in titanium chips and turnings with water spray, but in other instances reports indicate that the water merely intensifies the fire. Apparently there are some unknown factors that cause metal-water reaction under certain conditions.

A similar lack of uniformity has been noted in the results obtained with different types of fire extinguishers. Manufacturers and others who have been trying to develop both liquid and powder type extinguishers that will be effective on pyrophoric fires have encountered many baffling problems. For example, one manufacturer of dry powder extinguisher found that his powder could readily extinguish a fire in titanium sponge obtained from plant and oily titanium chips from another source, but it failed entirely to extinguish fires in titanium chips produced in another plant. So there is still a lot to learn about combustible metal fires.

Despite the fact that fire got a good start in this Albany, Oregon, zirconium manufacturing plant, aggressive fire fighting and sound pre-planning kept damage to a minimum. Quick use of a deck gun and well-directed hand lines established control within an hour and prevented involvement of zirconium sponge metal and helium and hydrogen cylinders. (Albany *Democrat-Herald* photo.)

Encouraging results have been obtained with trimethoxyboroxine on small fires in solid combustible metals. If suitable methods of application can be developed, it may be possible to use this compound effectively on larger fires. Satisfactory methods for the control of fires in heat-treating furnaces at magnesium processing plants have been developed. Borontrichloride gas was formerly recommended for this purpose, but recent tests have shown that borontrifluoride is more effective. The gas concentration required with the latter product is only about 1/10 that required with borontrichloride. However, we must remember that with the borontrifluoride, we have a toxicity hazard that must be considered. Only the systems that are piped for introduction of the gas into the furnace are satisfactory. This method of fire control is described in NFPA No. 48 — "Standards for the Storage and Handling and Processing of Magnesium."

Sludge disposal presents a serious problem wherever combustible metals are machined, ground or polished and dust produced in such operations is collected in liquid precipitation type separators. To avoid possible reactions among magnesium dust, the tools used in machining and the water or liquid in the collector, it is recommended that the sludge be removed daily and burned or rendered chemically inactive and noncombustible by treating it with ferrous chloride. This method of disposal is described in the NFPA pamphlet on magnesium, previously mentioned. Special chemical treatments will probably be developed for other types of metal sludge fires.

Standards for the storage, handling and processing of magnesium have been prepared by the National Fire Protection Association Committee on Combustible Metals, and this committee also has prepared proposed standards for fire and explosion prevention and protection during the production, processing, handling and storage of titanium.

"The Book of the States 1958–59"

THE Book of the States 1958–59" is a useful reference work covering services of the states in the United States. The current volume contains a statement about state fire protection. Orders for the book should be sent to the Council of State Governments, 1313 East 60th Street, Chicago 37, Illinois (546 pages, $9). Two supplements will be published ($2.50 each). The first, at the beginning of 1959, will list elective and administrative officials and legislators. A second supplement, in mid-1959, will list state administrative officials classified by functions and will include state fire marshals (book and both supplements, $12).

What They Said About

OLD No. 529

THE color pictures which appeared on the covers of the February and April issues of FIREMEN magazine brought many favorable comments from readers. However, two well-known students of fire apparatus history and collectors of fire photography called attention to the fact that the Amoskeag steamer shown in the February issue was not No. 520 but was actually No. 529. Here is a digest of their letters.

James B. Filleul, curator of The Old Fire Engine Shop in Manchester, New Hampshire, writes:

It certainly is a pleasure to see the old Amoskeag steam fire engine on the cover of your February issue . . . but . . . that engine is the Jackson No. 1; it was No. 529, the last Amoskeag Harp Tank ever built, delivered June 1, 1879. No. 520 went to New York City in February, 1877.

Almost identical comments came from Harold S. Walker, Charleston, South Carolina, an NFPA member for 11 years, who writes:

The data on your editorial page with regard to this engine does not check with official Amoskeag records in my possession. There were only 10 engines of this particular type built between April, 1865 (the first one), and March, 1866, and they carried builder's numbers between 127 and 175.

Builder's number 520 was delivered to New York City in February, 1877. Builder's number 529 was delivered to The Dalles, Oregon, in June, 1879. That's the official record. . . .

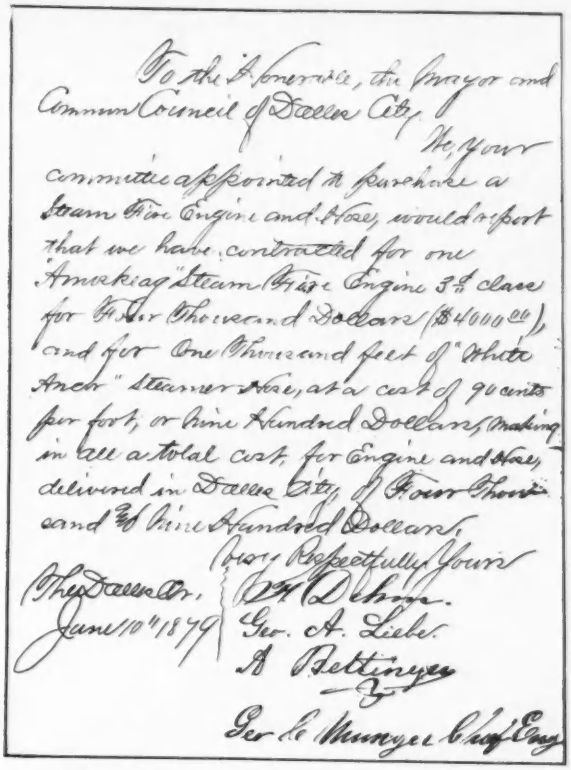
Says Chief Charles Roth of The Dalles, Oregon, Fire Department, who sent some of the background information on the cover photo:

Mr. Filleul and Mr. Walker are absolutely correct regarding the number of the Amoskeag steamer. It is No. 529 and not 520. My only excuse for this error is that 9 is right next to 0 on my typewriter and I never discovered the error until you called attention to it!

Subsequently Chief Roth sent to FIREMEN magazine the original bills of lading that bore the report and signatures of the committee appointed to purchase the Amoskeag steamer. (See illustration.) Also included was a receipt showing that the Hunneman hand tub mentioned in the February editorial was received from the Wells Fargo Company on October 6, 1862.

Color pictures of the Hunneman hand tub were submitted with comments by Fred S. Allen, president of the Box 15 Club of Los Angeles and an engineer of the Pacific Indemnity Company in that City. He also sent historical data on this unit.

Several readers asked if larger reproductions of the February and April covers were available. Unfortunately, engraving and reproduction costs prohibited the making of such prints, but copies of each of these issues are still available from NFPA at 50 cents each.



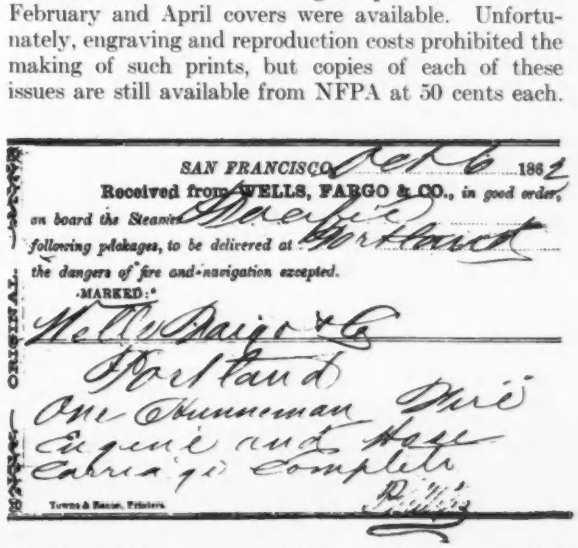
To the Honorable, the Mayor and Common Council of Dalles City.

Your committee appointed to purchase a Steam Fire Engine and Hose, would report that we have contracted for one Amoskeag Steam Fire Engine 3d class for Four Thousand Dollars ($4000.00), and for One Thousand feet of "White Arch" steamer Hose, at a cost of 90 cents per foot, or Nine Hundred Dollars, making in all a total cost for Engine and Hose, delivered in Dalles City of Four Thousand and Nine Hundred Dollars.

Very Respectfully Yours
W. H. Dibble.
Geo. A. Liebe.
A. Bettinger
By
Geo. L. Munyer Chief Eng

The Dalles, June 10th 1879

Records show that the Amoskeag steamer at The Dalles, Oregon, Fire Department was purchased "new" rather than secondhand. Purchasing committee signed its report June 10, 1879, acknowledging delivery.



SAN FRANCISCO Oct 6 1862

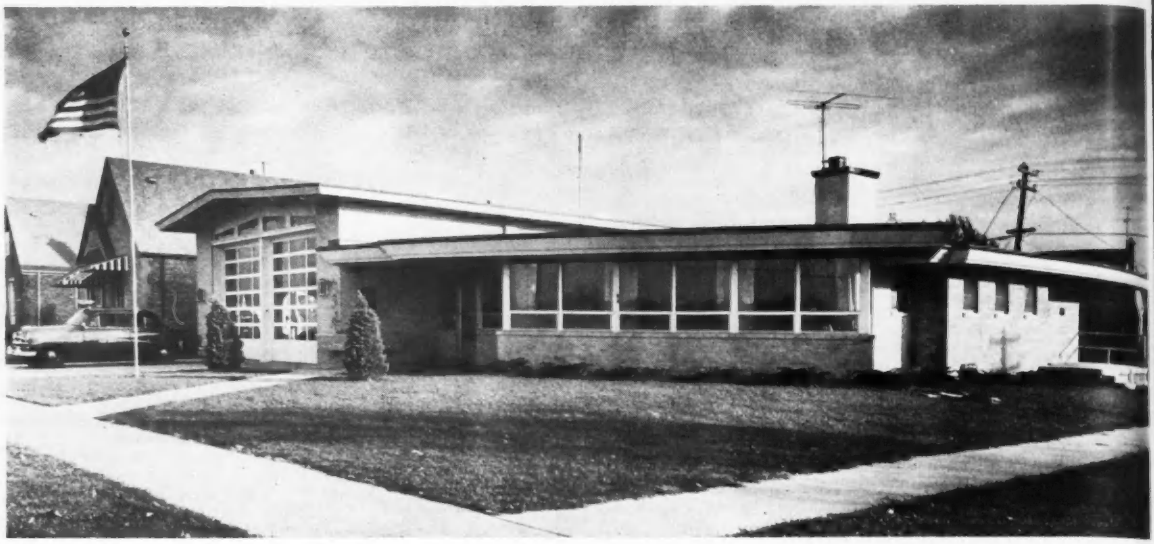
Received from WELLS, FARGO & CO., in good order, on board the Steamer Pacific for Portland following packages, to be delivered at Portland the dangers of fire and navigation excepted.

MARKED:

Wells Fargo & Co
Portland
One Hunneman Fire Engine and Hose Carriage complete

ORIGINAL

This Hunneman hand tub (see FIREMEN editorial, February, 1958) was received by Dalles City in 1862. The Department retains the original Wells Fargo shipping receipt which assures that the pumper was delivered from the steamer *Pacific* in good order. The old pumper is still in working order, has two single-acting cylinders, 6⅜-in. bore by 14¾-in. stroke, and "with lots of ambitious firemen on the brakes" it will pump about 200 gpm with 90 to 100 psi at the pump.



Des Plaines' Station No. 2, built two years ago at a cost of approximately $80,000, has a two-bay apparatus room, recreation room, officers' quarters, dormitory and kitchen facilities. Large basement area can be used for storage or additional rooms. Traffic light in front of station can be controlled from watch desk.

The Fire Department of

DES PLAINES, ILLINOIS

THE Fire Department of Des Plaines, Illinois, headed by Chief Raymond A. Kolze, provides an interesting study of a fire protection district. The Department, with a roster of 19 paid men and 12 call men, protects a population of nearly 30,000 in Des Plaines and four outlying areas including the North and South Main Districts, the Hawthorne Rand District and Park Ridge Manor.

It is estimated that there are more than 500 fire protection districts in Illinois. In that State a fire protection district may be any size and need not follow either township or county lines. Frequently a city or village may be included in the district. The organization of these districts dates back to an act passed by the Illinois legislature in 1927 primarily to assure adequate funds for the purchase and maintenance of fire protection equipment. It permits the levying of a tax up to .125 percent on personal and real property in the district to provide funds for the purchase of fire department equipment, maintenance and operation.

As with many other municipalities, there has been rapid development outside of the municipal limits of Des Plaines. For the most part these areas were residential and received water supply from a private concern. However, in their development no provision was made for fire department protection, and accordingly a contract was signed with Des Plaines to provide fire department response when necessary. After a time the people in these outlying communities followed the legal procedure of signing petitions, requesting that fire protection districts be established through referendum. As the referendums received favorable vote, the four outlying residential areas were absorbed into the area protected by the Des Plaines Fire Department, and the district tax went into effect.

Another provision of the legislation in Illinois is that in each district which has a fire department established and maintained by municipal or fire protection district ordinances, every corporation, company and association not incorporated under the laws of the state and engaged in selling fire insurance in the district, must pay to the secretary of the district a sum not to exceed 2 percent of the gross receipts received from fire insurance upon property within the district, providing the district maintains its own fire department. This money has been particularly useful in Des Plaines for the purchase of fire apparatus.

Chief Kolze's department is housed in two stations. Headquarters is in Station No. 1, part of the building

(Right) Watch desk at Station No. 2 is similar to that at headquarters. District telephone and radio communications are maintained between stations, and all communications are recorded.

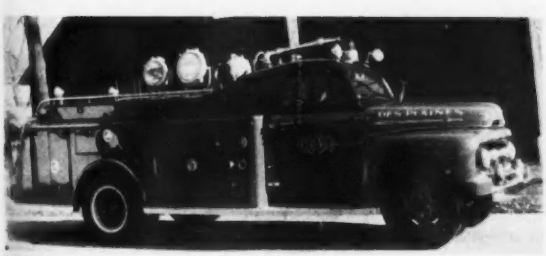
housing Police Headquarters and other municipal service departments. Apparatus here includes a new Ward LaFrance 750 gpm pumper, a squad truck, a 1937 Mack 65-ft. aerial ladder, and the chief's car. Station No. 2 houses a Seagrave 500 gpm pumper and a 1,000 gallon tank truck. All apparatus is equipped with two-way radio.

On all fire calls to commercial, industrial, school buildings, churches and places of public assembly, response includes the pumper, aerial ladder and squad truck from Station No. 1 and the pumper from Station No. 2. On general alarms within the city limits off-duty personnel report to both stations, and two men remain to cover Station No. 1 with one man in Station No. 2. All other personnel respond to the fire or emergency. On general alarms in the fire districts one man is left in headquarters with the off-duty shift responding and remaining at the fire stations unless otherwise directed. On calls for assistance from other municipalities all personnel report to the headquarters station. Off-duty paid and call men are summoned by a bell system connected between the fire stations and their homes. The department roster includes 19 paid men and 12 call men, with paid personnel working a 67½-hour week.

Telephone and radio communications for the Des Plaines Fire Department are channeled through Police Department headquarters. However, Station No. 1 has a master recorder and an extension recorder is in Station No. 2 to record all telephone and radio communications. The man on the watch desk receiving the call merely transmits the address of the fire or emergency which is then recorded on the tape so that responding off-duty personnel or call men, telephoning in response to the bell signals, can pick up the location immediately from the recorded message. Last year response to alarms in the city was about four times more numerous than response to outlying districts.

Chief Kolze has developed a training program which includes a minimum of 10 hours training per week. The evolutions of the NFPA pictorial book, *Handling Hose and Ladders*, have been adopted as standard procedure for his department, but there are also training courses in ventilation, fire department inspections and general fireground operation. From time to time personnel of the department take written examinations on these subjects.

Chief Kolze also provides his men with special bulletins pertaining to fire department procedure, the classification of building fires and fireground operation.



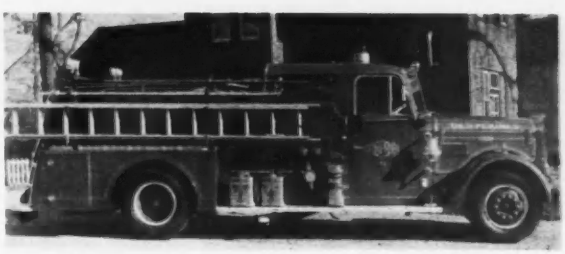
Chief Kolze is particularly proud of his squad truck built on a Ford chassis by General Body Corporation of Chicago. It has an Elkhart deck gun of 2,000 gpm capacity, lighting equipment, a 2500-watt Homelight generator, smoke ejector, rescue tools, hose and other equipment.

Recreation room in front of Station No. 2 features beautiful fireplace, baseboard radiation and lounge chairs.

Attractive kitchen facilities are in rear of station behind dormitory.

The latter bulletin spells out techniques to be used by fire fighters in handling the following: a fire in a single room, attic, basement or partition, the methods of operating at larger working fires, "size up" responsibility of the fire officer, exposure protection, ventilation, salvage, use of heavy streams and other fire fighting equipment. Drivers of fire apparatus fill out and submit a weekly 36-point check list to report the condition and functioning of the apparatus.

Chief Kolze also serves as fire marshal of Des Plaines and supervises the periodic inspections of industrial and mercantile properties. Members of the Department conduct inspections while remaining "on the air" with radio on the apparatus.



New 1,000 gpm Ward LaFrance pumper, placed in service last year responds to all first alarm calls in Des Plaines.

Fire Department in Beloit, Wisconsin

ONE of the recently organized fire departments in Wisconsin protects the Town of Beloit. This part-paid, part-volunteer fire department is headed by Chief Charles J. Morris and includes 5 full-time men and 25 volunteers who protect 88 square miles and 15,000 people in southern Wisconsin. The territory includes the towns of Beloit, Newark and part of Rock.

Shown above is the new $125,000 station which includes a ranch-type home for the chief and his family, an apparatus room, dormitory, kitchen, chief's office, watch room, workshop, locker room and shower facility.

Apparatus in the picture includes (left to right) a Seagrave 750 gpm pumper on an International Harvester chassis which has a 1,250 gallon tank equipped with a 4½-in. dump valve. This truck also carries 1,000 ft. of 2½-in. hose, 500 ft. of 1½-in. hose, a powered booster reel, portable pump and tank, aluminum ladders and other equipment. In the center is a Mack 750 gpm pumper which has a 750 gallon tank, a booster reel, 1,000 ft. of 2½-in. hose and 1,000 ft. of 1½-in. hose with two additional preconnected 1½-in. line. The pump has 4 suction inlets and 7 discharge outlets all controlled from the panel. It carries a portable generator, floodlights, smoke ejector, gas masks and other equipment, including fog nozzles up to 500 gpm capacity. At right is the chief's car which is a 1957 Mercury.

All apparatus is radio-equipped; volunteers in the department are alerted by tone-controlled monitor radio.

This is the second fire department that Chief Morris has founded and organized in Wisconsin within the past two years. He is a past president of the Wisconsin State Fire Chiefs' Association, a member of NFPA and the International Association of Fire Chiefs. Prior to coming to Beloit, he organized a department in Bayside, Wisconsin, and previous to that had served for 15 years as chief of the Sharon Fire Department.

German Experiments on Fire Hose

SOME recent studies of fire hose have been published by the German Research Center for Fire Fighting Technology at the Karlsruhe Technical University. This is a report by Dipl.-Ing. Arnold Krüger, entitled "Experiments with Fire Hoses" (No. 1, 1957, approximately 6 by 8¼ inches, paper-bound, 136 pages plus a number of tabular insets). Members who can use a text in German should write for copies to Forschungsstelle für Feuerlöschtechnik an der Technischen Hochschule Karlsruhe, Hertzstrasse 16, Karlsruhe-West, Germany.

The Report examines the characteristics of various synthetic fibers in hose, reporting tests in conformance with a German Standard for Pressure Hose (DIN Sheet 14,811). The technical data deals with the usual range of tests which are applied for the examination of hose, including pressure tests, chemical tests, and tests covering the effects of light, heat, cold, aging and fiber decay. Data is thoroughly reported in photographs, diagrams and tables, and there is a 7-page bibliography.

The series of experiments was made possible by a number of principal manufacturers of fire hose in Germany and with the cooperation of the German Central Testing Center for Fire Hose. The Report was published with the assistance of the International Plastic Fire Hose Corporation of Voorburg, Holland.

Memphis Church "Gutted"

Plenty of water and a powerful fire department were not enough to save this structure, due to delayed discovery. Fire Chief John C. Klinck reported that the hurricane of burning brands was so intense that "had this been in the old days of wood shingle roofs, we would have had a real conflagration on our hands." As it was, the windshield of the Chief's car was cracked by heat, and the Fire Marshal's car was ignited by brands.

Rope

the firemen's friend

Part I

FIRE fighters take part in countless operations similar to the one shown above, and rope plays a vital role. But, like every other piece of fire department equipment, rope must give top performance in these emergency actions and, accordingly, throughout its service needs continual observation, care and maintenance.

Although FIREMEN magazine in years past has featured stories on the care and use of rope by fire departments, questions submitted recently by A. L. Rathke, chief of the Training Division, San Antonio, Texas, Fire Academy, prompted fresh research. Rope is a valuable but frequently uncared for item of equipment for every fire department. Whether it is used as a sling in making rescues, as a lifeline or simply as a means of controlling a ladder pipe, the condition, strength and capability of the rope in moments of quick fireground action can be of paramount importance.

Chief Rathke obviously had this in mind when he asked for information on the procedure for testing rope, the frequency of examination and the strength of rope under various conditions of load. For the answers to these questions and for additional background information the editors of FIREMEN magazine are indebted to F. C. Hilton, field product engineer of the Plymouth Cordage Company, Plymouth, Massachusetts, one of the largest rope manufacturers in the world. Incidentally, the Company has a number of informative pamphlets covering the history, manufacture and use of rope, single copies of which are available free. Among them are "The Story of Rope," "How to Put Rope to Work in Industry" and "Useful Knots and How to Tie Them."

Mr. Hilton recommends that fire departments should purchase Class I manila rope which should meet the requirements of Federal Specification T-R-605 (available from Superintendent of Documents, U.S. Government Printing Office, Washington, 25, D.C., at 10 cents per copy). This specifies the diameter, weight, tensile strength and lay of first-grade manila rope. He points out that while this specification provides a minimum standard, some of the better domestic brands of manila rope when new have actual tensile strengths running 15 to 25 percent higher than the tensile strengths required in these specifications.

In selecting first grade manila rope of domestic manufacture for a particular job, the safety factor of five to one is used; that is, the load requirements are estimated and the rope is chosen which has a minimum tensile strength of five times that figure. For example, if a fire department expected to lift a load of 1,000 pounds with a single leg vertical sling, then it would require a rope with minimum tensile strength of 5,000 pounds. According to Federal Specification T-R-605, this means that a Class I rope of ¾-in. diameter would be required.

Types of Rope

The raw materials used in the manufacture of rope and other cordage products are vegetable fibers. The most familiar types are manila, sisalana (commonly called sisal) and henequen. Each of these consists of "hard fibers" but on occasion hemp, a soft fiber, is used. Manila, the chief ropemaking fiber which should be used by the fire service is grown in the Philippines and Central America. Sisalana, grown in Africa, the Dutch East Indies, Haiti and Brazil, is used in some types of rope in baler and tying twines. Henequen, grown in Mexico and Cuba, is used primarily in binder twines.

Most fire fighters are familiar with the process of manufacturing rope, but a brief summary may be helpful. The raw vegetable fibers are brought to the factory in bales and prepared for spinning into ropes and twines. The fibers, varying in length from 32 in. to 8 ft., must be combed, cleaned of tow, strengthened and made into continuous form called roping or sliver, before they can be spun into yarn. This process is done by large combing machines and the fibers are treated with an emulsion to make them soft and pliable with permanent lubrication.

This first crude roping then moves to a series of draw frames which take 8 or 10 of the slivers and combine them into a single one. After this the slivers move to finishing machines where they are combed and drawn down to the needed size. Quality control inspections are made to guarantee uniformity and weight of the slivers.

The bundles of this finished roping now move to spinning machines to be twisted into rope yarns or into twines. Since the fibers are apt to slip by one another when tension is applied at both ends, a compression balance is achieved by twisting the fibers together. The yarns must be smooth, round, dense, and uniform in diameter and are tested periodically for these qualities during the entire manufacturing.

(*Continued next month*)

HYDRANTS CAN MAKE A DIFFERENCE!

DURING a recent fire causing about $350,000 loss the first alarm companies used layouts of two 2½-in. hydrant lines to supply 1,000 gpm pumpers spotted at the front and rear of the fire area. However, the mains supplying the hydrants were very small, mostly 4-in. size, and were old and dirty. The flows from the first-used hydrants were entirely inadequate to supply the pumpers effectively. It was necessary to run a supplemental line to another hydrant and then use a pumper relay to get sufficient water to the first alarm pumpers. By that time the fire had extended through much of the building.

Later, the department was criticized for attempting to supply the in-line pumpers in an area of weak water supplies. It was suggested that had the pumps been connected directly to the hydrants with large suction the results might have been different, even though it was admitted that with the limited manpower available the applied layout was the fastest and also permitted use of preconnected lines.

Study of available data regarding water supply in the fire area indicated that not only was the water supply weak but most of the hydrants in the immediate fire area could not be expected to provide 500 gpm each. We fail to understand how connecting 1,000 gpm pumps to single hydrants capable of less than half of the individual pumpers' rated capacities would be worthwhile. A pumper connected directly to a hydrant may get a somewhat better supply but only if the hydrant can provide the required flow; and if men and hose are available to utilize that flow.

It would seem that this situation was very similar to the problem of water supply discussed in FIREMEN for October, 1957 (page 8), calling attention to the importance of knowing the location of the nearest hydrants on large mains and using these to supplement initial attack. In other words, hydrants should have an identifying code to indicate available flows of over 1,000 gpm, 500 to 1,000 gpm, and under 500 gpm as recommended by the NFPA, the International Association of Fire Chiefs and the American Water Works Association.

At the fire in question the first officer to arrive should have radioed a report of a "working fire" and requested supplementary pumping. The second alarm pumper would have responded immediately to the fire and relayed from the nearest hydrant on a large main (shown on the waterworks map), and supplied additional water to both of the first alarm pumpers on the small mains. There were 10- and 12-in. mains near enough to permit this supplementary pumping. Of course, when it became known that the hydrants near the fire were quite inadequate for more than an initial attack it might have been desirable for at least one of the first alarm pumpers to lay two lines from the fire and connect directly to a hydrant giving at least 500 gpm. (Some of the hydrants in the area could not supply 250 gpm, and these should not be used since better hydrant flows were available within the reach of the hose.)

As has been pointed out many times, a pumper does not manufacture water, and it is of extreme importance that both officers and pump operators know the flows available at each hydrant to obtain the maximum flow available. No modern pumper should have any difficulty in supplying two good 2½-in. lines 600 to 1,200 ft. long. Except for the first due pumper making a fast attack with preconnected lines, there is not much excuse for using a poor hydrant just because it is nearest to a fire.

Uniform Marking of Fire Hydrants

(Recommendations of NFPA Committee on Public Water Supplies for Private Fire Protection)

From the NFPA Handbook of Fire Protection

The idea of indicating relative available fire service draft of hydrants by different colors is of substantial value to water and fire departments. A test of an individual hydrant does not give as complete and satisfactory results as group testing, but such a test has sufficient value to make it worthy of adoption as a start in the right direction. The colors should be understood to signify only the individual capacity of the hydrant as tested and not group hydrant effect.

It is therefore recommended that hydrants be classified as follows:

Class	*Flow*	*Color of Tops and Nozzle Caps*
A	1,000 gpm or greater	Green
B	500–1,000 gpm	Orange
C	Less than 500 gpm	Red

Capacities are to be rated by flow measurement and tests of individual hydrants at a period of ordinary demand. Rating is to be based on 20 lbs. per sq. in. residual pressures when initial pressures are over 40 lbs. per sq. in. When initial pressures are less than 40 lbs. per sq. in. residual pressures shall be at least half of the initial.

The capacity indicating color scheme provides simplicity and consistency with colors used in signal work for safety, danger and intermediate condition. All barrels of public hydrants are to be chrome yellow except in cases where another color has already been adopted.

Within private enclosures the marking of private hydrants is to be at the discretion of the owner. Where private hydrants are on public streets they should be painted entirely red to distinguish them from public hydrants.

All location markers for flush hydrants should carry the same color background for class indication with such data stenciled or painted thereon as may be necessary.

L. A. County Annual Report

THE ANNUAL REPORT of the Los Angeles County Fire Department is an excellent presentation of the organization and activities of that Department during 1957. The 24-page, 8½- by 11-in., illustrated booklet could well serve as a model for municipal fire departments.

In general, its contents cover the administration, the fire fighting services, Fire Prevention Bureau, forestry division and business division of Chief Keith E. Klinger's fire department. The section on organization features a detailed organizational chart showing the chain of command in the Department. Chief Klinger has the dual title of chief engineer and forester and fire warden. Reporting directly to him are a deputy chief who serves as chief assistant forester and fire warden, the first assistant chief in charge of fire fighting services, the assistant fire chief in charge of the Fire Prevention Bureau, the head deputy forester in charge of the forestry division and the business manager who heads the business division.

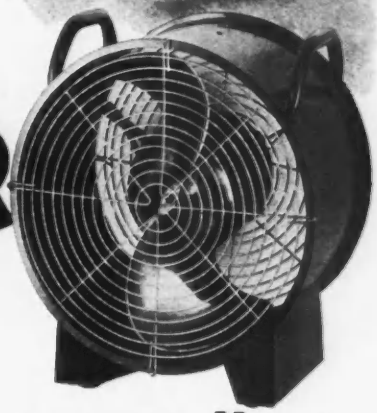
Reporting to the deputy chief are the headquarters captains (chaplains), a property agent, a public information officer, the research and planning group and the training division. Reporting to the assistant chief who heads the fire fighting services are the three fire fighting divisions, the construction and maintenance and special services division. Two battalion chiefs in command of special details and area details report to the assistant fire chief in charge of the Fire Prevention Bureau. Deputy foresters in charge of the field program and forestry camps report to the head deputy forester. Reporting to the manager of the business division are the accounting and payrolls department, the administrative assistant, the personnel assistant, the central files and the supply and transportation office.

The rest of the Annual Report shows highlights of the Department's operations during the year, including illustrations of fire actions, breakdown of fire causes, types of occupancies involved and financial expenditures and receipts.

Get smoke out, get air in

with Multi-Purpose

SUPER VAC



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NOT JUST A FAN... but a powerful vacuum-action air screw... Super Vac is amazingly simple in operation, made possible by the efficient design of the **powerful propeller** that is the heart of the unit. This patented propeller produces 100% pulling or blowing power over its entire surface.

Proved method of saving lives while also reducing smoke damage

Fire departments **nation-wide** attest to the speed with which Super Vac provides **controlled ventilation**... so necessary in modern fire fighting. This multi-purpose unit primarily (1) gets rid of smoke and fumes through its powerful vacuum action... or, (2) furnishes a tremendous blast of fresh air into the smoke-congested area, reducing the dangers of combustion and asphyxiation. Although one unit is often sufficient, **complete controlled ventilation** can be more speedily accomplished by using two or more units... one or more units **pulling out the smoke and fumes** while the remaining units **blow in a steady supply of fresh air.**

★ **Highly portable... operates in any position**
★ **Design permits vertical stacking**
★ **Made in 16" and 24" sizes**
★ **AC or DC, regular or explosion-proof motors**
★ **Choice of red or white baked enamel finish**
★ **Running board mounts available**

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SUPER VACUUM

SUPER VACUUM MANUFACTURING CO., Inc
319½ East Seventeenth Ave., Denver 3, Colorado

FIRST AID AND LEGAL LIABILITY

by O. C. Kreymborg, M.D.

A new contributor to "FIREMEN" magazine, Dr. O. C. Kreymborg is staff member of the Memorial and St. Mary Hospitals, North Platte, Nebraska, and has been a member of the Nebraska State Volunteer Fire Department for 30 years. He is an active member of the North Platte Volunteer Fire Department, holds membership in the Nebraska State Medical Association, the American Medical Association and the American Association of Railroad Surgeons, and was president of the Nebraska State Volunteer Fire Department Association. In his article, Dr. Kreymborg points out the legal problems involved in first aid operations in Nebraska. Readers interested in the liability aspects in their own States should get professional legal advice from an attorney.

IN MY 10 years of teaching first aid at the Nebraska State Volunteer Firemen's Annual School, the question of incurred legal liability has continually been discussed. The consideration of possible suits due to misinterpretation of aid rendered by competent trained first aiders has hampered some fire companies from organizing and operating emergency units, thus depriving their communities of this important service.

Consultation with Attorney W. Mullikin, a fellow volunteer fireman, reveals that under Nebraska law, we need have no fear of liability if certain aspects are kept in mind. Here is an interpretation of the law in this State:

LIABILITY OF VOLUNTEER FIREMEN RENDERING FIRST AID TO PERSONS INJURED

There is no actionable negligence in the absence of some duty which has been neglected or violated and hence in order that a person may have a cause of action on account of an injury to himself and against a volunteer fireman who attempts to care for the injured person, it would be necessary that the injured person should have some act on the part of the fireman or a failure to act on the part of the fireman which involves some breach of a duty which the fireman owes to the person who is injured. Thus a volunteer fireman, who attempts to aid an injured person or one who is in a position where he may be injured, cannot be held liable if in the aiding of the injured person the fireman has exercised ordinary care in his actions.

However, if the fireman were to unreasonably mistreat an injured person in such a manner as an ordinary person would understand that such mistreatment could cause injury, that fireman may be held liable.

THE LIABILITY OF VOLUNTEER ASSOCIATIONS

Volunteer associations cannot be held liable for the actions of an individual member of the association unless it may be clearly shown that the individual was acting for and at the insistence of the volunteer association.

A volunteer association of firemen, recognized by the City as being a regular part of the City municipal functions of protecting lives and property from losses due to fire or other disasters, would not, while acting in the scope of recognized duties as a volunteer fireman, be held liable for the carrying out of any duties assigned to the association.

DEFINITION OF ASSOCIATION

An association is a body of persons acting together for particular purposes. An association not engaged in business enterprises and the objects of which do not contemplate profit or loss, is not a partnership, and the liability of its members for debts contracted in behalf of the association is nil, for the reason that membership in the association as such does not impose a personal liability for the debts of the association; but, however, where the members individually have assented to or ratified a contract which the association has entered into, the liability may attach to the individual members. The association could not be held liable for the tortious (unlawful) conduct of individual members of the association unless it could be clearly shown that the tortious act was within the scope of the purposes for which the organization was formed.

Governmental agencies cannot be held liable as a result of governmental functions. Thus, paid firemen, operating emergency and performing first aid duties, cannot be held liable, providing no mistreatment occurs.

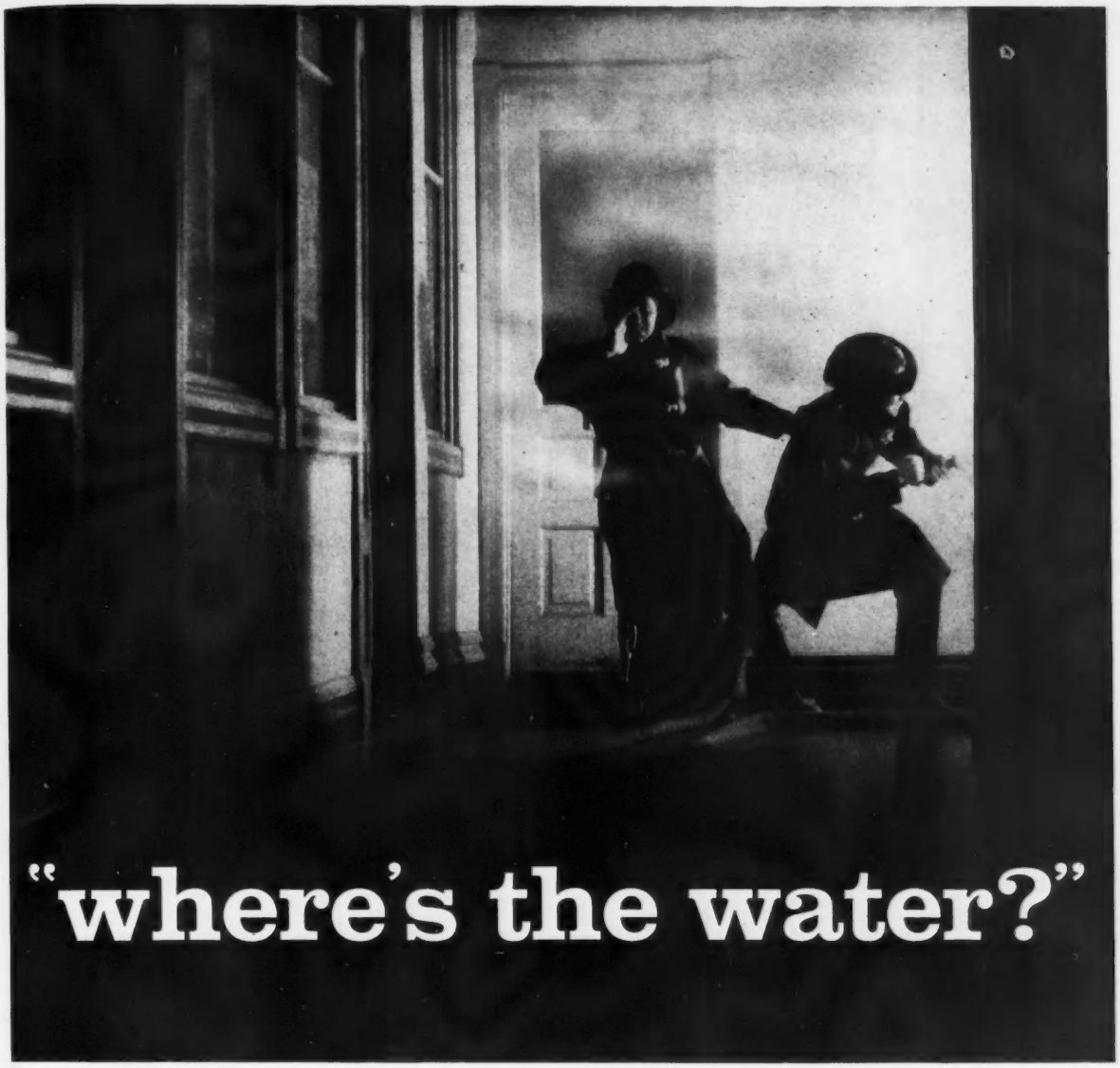
Volunteer fire departments may be either (de-facto), in fact, or (de-jure), in law; a governmental agency depending upon a duly enacted law. Paid departments always are de-jure because of ordinance or statute enactment.

Privately owned and operated ambulances or emergency units which provide first aid as well as transportation for the sick or injured should provide themselves protection by having liability insurance.

Also, fire department emergency units should not charge for services unless specific city rulings are a matter of record. This will cover only transportations ter of record Such rulings usually cover only transportation. Donations may be received for services, and usually are used to purchase equipment and not as cash remuneration for the crew members.

As stated above, this is Nebraska statute. Any volunteer or paid fire department can easily consult its local attorney and obtain an interpretation of its State's statutes. The satisfaction of operating with protection of the law instills confidence and inspires men to greater deeds.

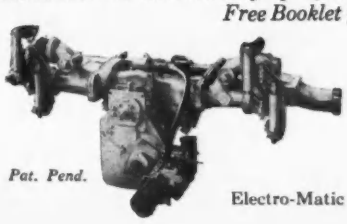
Montreal, Canada, recently put into service this new Diamond T "Model 720C" rescue unit. It features a 320-cu.-ft. air compressor, pavement brakers, air saws and other mechanical tools, respirators, surgical instruments, two-way radio-telephone, a public address system, lighting units and other emergency equipment. It is powered by a 164-hp engine and features a tilting cab to allow easy maintenance service.



new Waterous *Electro-Matic pump gets water to the fire in less time

The *Electro-Matic* is the first fire pump to offer power operation for all major pump controls. You get into action faster, during those precious early minutes. You start pumping without lost motion. New Waterous *Electro-Matic* gives you push-button controls that reduce the chance of error and offer greater protection to personnel. Main pump is engaged at the flip of a switch; the powerful rotary-gear primer goes into action with the push of a button; "open" and "close" push-buttons unlock, reset and lock the discharge valves; a simple "volume-pressure" switch sets the transfer valve. And that's not all. The *Electro-Matic* is an entirely new pump in design. It weighs less, requires less space and can be mounted in a variety of methods to meet requirements of all modern chassis. All this plus the features that have made Waterous pumps famous such as horizontally-split, *two-piece* case and full ball-bearing construction.

Free Booklet gives complete details. Your copy by return mail. Send for it today.



Pat. Pend.

WATEROUS *Electro-Matic*

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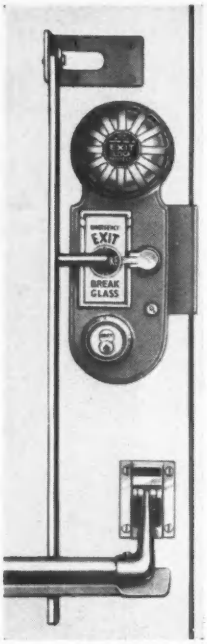
Dept. 203

Electro-Matic Model CM, 1000 GPM, Class A. 500, 750 GPM, 2 or 3-stage models available



Now **Fire Exits Can Be Locked Safely, Legally with EXIT LOCK!**

• EXIT LOCK safeguards lives and property . . . allows fire doors and emergency exits to be locked legally, yet permits instant exit when fire strikes! EXIT LOCKS may be unlocked by authorized personnel for deliveries, loading, etc. Alarm bell rings when *unauthorized* person opens door. Fits single or double door exits with panic devices.

BEST

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Best Universal Lock Co., Inc.
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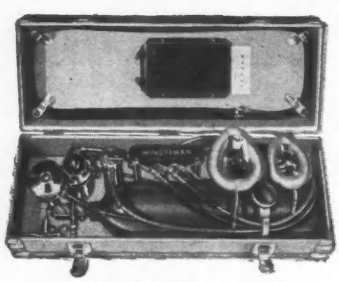
STEPHENSON "MINUTEMAN" RESUSCITATOR



(Weighs only 30 pounds)

This lightweight, lifesaving device is especially designed for FAST application in all respiratory emergencies.
The newest rookie can start it breathing for the victim in seconds.
Its size and weight make it particularly desirable for use in:

Crash Trucks	**Emergency Cars**
Ambulances	**Patrol Cars**
Rescue Trucks	**Civilian Defense Corps**

Write for FREE demonstration or pamphlet R-302

STEPHENSON CORPORATION
RED BANK *NEW JERSEY*

Films for Firemen's Training

(Continued from last month)

NUMEROUS requests are sent to the NFPA Executive Office concerning motion picture films available for fire department training, for the training of industrial fire brigades or for general public education.

The editors of FIREMEN recently surveyed a number of motion picture film producers and distributors to obtain an up-to-date listing of useful films on fire protection and fire prevention. Accordingly, the next few issues of the magazine will include a listing of films on these subjects. The NFPA has not reviewed all of these films, and their inclusion in this listing does not imply that the NFPA endorses the recommendations, techniques, evolutions or products used or advertised in the films. Fire departments who want to show these films for training or educational purposes should write to the organizations listed and review the films before showing them to an audience.

The first section of this listing, continued from previous issues of FIREMEN magazine, covers films on fire department operations. Other listings will cover films on fire prevention, general public education, forest, grass and brush fire fighting, industrial fire protection, aircraft fire control and Civil Defense.

FIRE BOAT. 16mm, black and white or color, sound. 10 minutes. (Released 1953.) Shows how a fire boat operates in putting out waterfront fires; describes boat's distinctive features and shows scenes of men and boat in action. *Bailey Films, Inc., 6509 De Longpre Ave., Hollywood 28, Calif.* **Purchase, rental.**

FOG AGAINST FIRE. 16mm, color, sound. 20 minutes. Shows use of fog on rural dwellings from portable water supply, 1½-in. lines on suburban dwellings, master streams and hand lines on lumberyard fires, and on a train wreck and ensuing fire with teamwork of different fire departments on mutual aid basis in areas without water supply. *Steve Smith Pictures, 623 Kansas Ave., Topeka, Kan.* **Purchase $120.**

GETTING THE MOST OUT OF WATER. 16mm, color, sound. 20 minutes. (Released 1958.) Training film on the use of water fog in extinguishing fire; the theory of the heat absorption power of water; various types of fog nozzles shown, including those of large capacity for use with master stream appliances. Produced under the auspices of the Committee on Firemen's Training of the NFPA. *Steve Smith Pictures, 623 Kansas Ave., Topeka, Kan.* **Purchase $129.50.**

MR. WHITMAN GOES TO FIRE COLLEGE. 16mm, color, sound. 11 minutes. The course at Ansul's fire training school. Information regarding registration, classes and reservations; actual training. *Ansul Chemical Company, Marinette, Wis.* **Free.**

SALVAGE. 16mm, color, sound. 10 minutes. Training film on fire department salvage operations supplementing the Salvage and Overhaul Practice Manual Unit IV in the Fire Service Training series. *Steve Smith Pictures, 623 Kansas Ave., Topeka, Kan.* **Purchase $75.**

WATER FOR FIRE FIGHTING. 16mm, black and white or color, sound. 51 minutes. (Released 1954.) Since the understanding of what water is and how it behaves is essential to successful fire fighting, the behavior of water is fascinatingly explained through the use of clever animated drawings, color and music. *British Information Services, Contemporary Films, Inc., 13 East 37th St., New York 16, N. Y.* **Rental $15 (color); purchase $150 (b/w), $400 (color).**

WATERFOG — MASTER OF FIRE. 16mm, color, sound. 37 minutes. Illustrates to industrial plants, refineries and municipal fire departments merits of Rockwood Waterfog for fighting flammable liquid fires and Class A fires. *Rockwood Sprinkler Company, 38 Harlow St., Worcester, Mass.* **No rental charge; purchase $251.78 including reel and can.**

WHERE'S THE FIRE? 16mm, black and white, sound. 20 minutes. Advance in fire fighting in the last 100 years. *University of Missouri, Visual Education Department, 23 Jesse Hall, Columbia, Mo.* **Rental $2.50 for 2 days** (available in Missouri only).

YOU BET YOUR LIFE. 16mm, black and white, sound. 30 minutes. (Released 1952.) The use of protective equipment by firemen. Importance of such protection illustrated by story of one man who neglected using his equipment. *Mine Safety Appliances Company, Braddock, Thomas & Meade Sts., Pittsburgh 8, Pa.* **Purchase, loan.**

YOUR FIRE DEPARTMENT. 16mm, color, sound. 32 minutes. Shows how a fire department is organized, trained, financed and operated and gives to each fireman a sense of responsibility for that department. *Cinesound Company, 1037 North LaBrea Ave., Hollywood 38, Calif.* **Purchase $187.50.**

YOUR FIREMAN. 16mm, black and white or color, sound. 12 minutes. (Released 1954.) A public relations film, it explains the countless things which the fire department accomplishes outside of fire fighting *Riviera Productions, 26328 South Western Ave., Lomita, Calif.* **Purchase $35 (b/w), $90 (color).**

Films on Fire Prevention

ARE YOU SAFE AT HOME? 16mm, black and white, sound. 16 minutes. (Released 1948.) Shows the many hazards found in the home, with special emphasis on fire. Tells how these hazards can be eliminated. *National Film Board of Canada, 630 Fifth Ave., Suite 658, New York 20, N. Y.*, or *United World Films, Inc., 1445 Park Ave., New York 29, N. Y.* **Purchase $60.**

BEFORE THE ALARM. 16mm, black and white, sound. 10 minutes. Fire prevention engineers at work in a typical American community. *National Board of Fire Underwriters, Bureau of Communication Research, Inc., 267 West 25th St., New York 1, N. Y.* **Free.** *Audio-Visual Extension Service, 115–121, TSMa, University of Minnesota, Minneapolis 14, Minn.* **Rental $1.** *University of Missouri, Visual Education Department, 23 Jesse Hall, Columbia, Mo.* **Rental $1.50 2 days** (available in Missouri only).

CHEMISTRY OF FIRE. 16mm, black and white, sound. 45 minutes. Treats the chemistry of fire and fire's characteristics, then shows practical extinguishment of fires by smothering and cooling using carbon dioxide gas, foam and water fog. *Rockwood Sprinkler Company, 38 Harlow St., Worcester, Mass.* **Free.** *ROA's Films, 1696 North Astor St., Milwaukee 2, Wis.* **Rental $3.50.** *Indiana University, Audio-Visual Center, Bloomington, Ind.* **Rental $4.75.** *National Board of Fire Underwriters Film Library, Bureau of Communication Research, Inc., 267 West 25th St., New York 1, N. Y.* **Free.**

FIRE IN MINIATURE. 16mm, color, sound. 27 minutes. (Released 1950.) Portrays the thought of a fireman as he views his town from moving fire truck. *Liberty Mutual Fire Insurance Company, 175 Berkeley St., Boston 17, Mass.* **Free.**

FIRE IN THEIR LEARNING. 16mm, black and white or color, sound. 19 minutes. (Released 1954.) Actual account of how elementary school children can be made interested in study of fire and fire prevention. Shows how careful and intelligent teaching methods can help them develop fire safety habits. *National Commission on Safety Education, National Education Association, 1201 16th St., N.W., Washington 6, D. C.* **Purchase $42 (b/w), $95 (color).**

(Continued next month)

Outstanding Performance
Superior Workmanship

THE INVINCIBLE NOZZLE

Fire Chiefs from Coast to Coast say:
"FOR THE FINEST BRASS GOODS, *Specify* McINTIRE."

Fig. 402
Portable INVINCIBLE Ladder Pipe

600 GPM or 1100 GPM — Operated by handle from ladder or by control rope from the ground.
Rung Pulley for ground control
Pipe Clamp

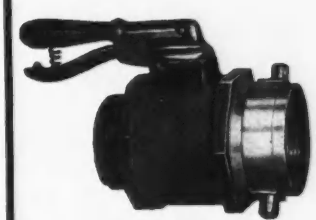


Fig. 163
Double Seat Hydrant Gate, either right hand or left hand. 2½" N.S.T. male x female.

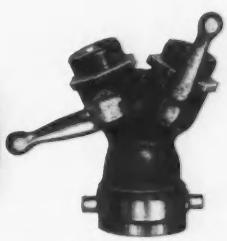


Fig. 1595S
Leader Line Gated Siamese, 2½" x 2–1½" outlets, full water way.

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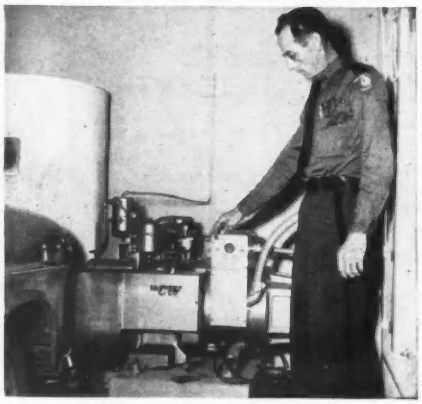
ELECTRIC PLANT
NEWS

Police and fire departments are assured power

Onan 10KW Emergency Electric Plant protects community building

Among the many modern features of the new community building in Indian Hill, Ohio, is *insurance against power interruptions.* When disasters knock out highline power, the Onan Electric Plant starts automatically and supplies all the electricity needed for police and fire departments. Provides current for lights, radio and other electrical equipment. Allows vital municipal services to operate normally, *protecting the community.*



The Onan 10KW, Series "CW" standby plant at Indian Hill is powered by a 4-cycle, 2-cylinder, air-cooled engine. It is equipped with Vacu-Flo cooling which allows installation in a closed room or small compartment.

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You can't stop a leopard with a popgun . . . and you can't stop a crowd with popgun fireworks.

ATLAS Fireworks, made by men who produce and set off the truly brilliant program displays, are available now to suit any budget.

You'll see the difference . . . and so will your crowd!

One sign of a truly professional show is a spectacular finale. The standard ATLAS finale bombshell to the right is several times as big as the one with it, taken from a competitive catalog finale and shown with a 16-gauge shotgun shell for comparison. The small one is typical of finales being offered at equivalent prices.

ATLAS big bombshell, compared with it, is like a .45 Colt bullet beside a .22 shot.

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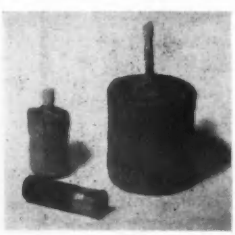

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ATLAS FIREWORKS COMPANY

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1957 Large Loss Fires

THE NFPA Fire Record Department has completed its study of large loss fires of 1957, which was published in the April NFPA *Quarterly.*

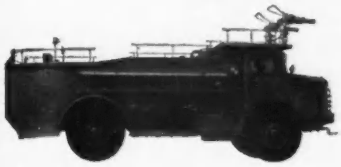
It reports that during 1957 there were 422 fires and explosions in the United States and Canada which caused losses of at least $250,000 each. Of these, 77 involved losses of $1 million or more. The total loss resulting from the 422 fires was $349,915,500. This exceeded by $20 million the total of large loss fires of 1956, the previous high year.

Last year the number of large loss fires was eight less than the record number of 430 that occurred in 1956. In these 1957 fires there were 312 deaths, including 222 aircraft fire fatalities, and 856 nonfatal injuries (aircraft nonfatal injuries not included).

In this new study the fires have been grouped into eight classifications and except for the aircraft fires, include discussion of the significant factors responsible for the fire experience in each classification. The summary reports the fire experience according to geographical distribution, construction features, the presence or absence of fire detection and alarm systems, the use of sprinklers, standpipes, and the operation of industrial fire brigades, the basic fire causes and the role played by sprinkler protection.

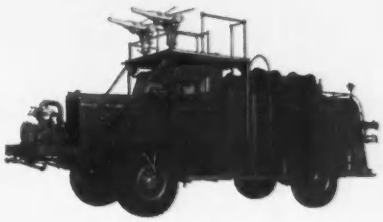
Seat Belts for Apparatus

HUBERT WALKER, member of the NFPA Committee on Fire Department Equipment, and Manager, Motor Fire Apparatus Sales Engineering of American LaFrance Corporation, Elmira, New York, calls attention to an important factor concerning safety belts for fire apparatus. He mentions that it is important for fire chiefs purchasing such safety belts to specify that the belt meets the requirements of the Civil Aeronautics Administration whose specifications are used for the purchase of safety belts on commercial airlines. Fire departments in Canada should follow the specifications of the organization that is the Canadian equivalent to the Civil Aeronautics Administration.



WASHINGTON, D. C., NATIONAL AIRPORT

FIRE JEEP — CRUCIBLE STEEL CO. OF AMERICA



U. S. COASTGUARD

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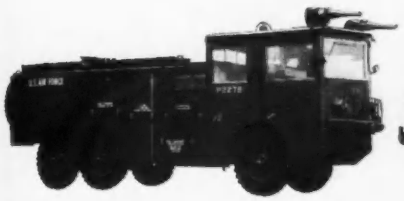
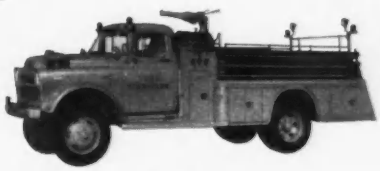
AIRCRAFT CRASH RESCUE TRUCK
FAIRCHILD AIRCRAFT CORP.



U. S. AIR FORCE TYPE 0-11-A



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DACRON at the vital folding edges keeps these areas "alive" even after prolonged storage.

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folds flatter without cracking

Even under constant flexing and tight packing—the hardest wear you can give any fire hose—TUFF-EDGE by Quaker stands up far longer than former high-quality cotton-jacket hoses. Longer life, 15% less weight, and far less bulk are natural results of the synthetic-fiber edge construction of TUFF-EDGE. Since TUFF-EDGE folds flatter in trucks and on reels, more hose fits in less space, without cracking in the creases.

Mildew, occurring in folds which have not completely dried, causes fast deterioration. The extra-fast drying and mildew-resistance of the polyester-filament edges of TUFF-EDGE means greater flexibility and longer life for the hose. 50-ft. lengths; 1½" and 2½" diameters; brass expansion-ring couplings.

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H. K. PORTER COMPANY, INC.

QUAKER RUBBER DIVISION

Martial Law for Cities Hit by H-Bomb

AN IMPORTANT disclosure of plans for war-time operations was made recently by General Willard G. Wyman, head of the Continental Army Command. In a speech to the National Association of State and Territorial Civil Defense Directors, General Wyman said that the Army plans to impose complete martial law on United States cities which have been hit by enemy bombs or missiles in any future war. The military will also "assume authority to conscript and commandeer defense workers and to carry out punishments in areas where civil authorities are incapable of functioning."

General Wyman stated that such provisions were necessary for "realism" in nuclear-age defense planning and that the plan was based entirely on necessity. It would be put into effect on orders from the President or under authority delegated by the Secretary of Defense.

This decision should be of prime importance to fire departments and should be of major significance to Civil Defense organizations, plans and operations. The fact that martial law is established in an area will require exceptional coordination between the military and the public service organizations responsible for that area.

New Chief in New York City

DEPUTY CHIEF George David has been appointed to head the New York City Fire Department, succeeding Chief Edward Connors who has retired. The new appointment, announced recently by Fire Commissioner Edward F. Cavanagh, Jr., became effective the first of May.

Chief David obtained the highest grade in a recent Civil Service examination for the position, in competition with 41 other fire officers. Placing second and third in the examination were Deputy Chief Alfred T. Mendy, First Division, Manhattan, and Deputy Chief Otto H. Knochenhauer, who heads the New York Fire College.

As deputy chief, Chief David was attached to the 11th Division in Brooklyn. He has been a member of the New York City Fire Department since 1927.

Fire Departments and Boy Scouts

ACCORDING to Chief Scout Executive Arthur A. Schuck, National Council Boy Scouts of America, there has been a 9 percent increase in the number of Scout units sponsored by paid, call and volunteer fire departments. By the end of 1957 a total of 1,600 Scout units were receiving such sponsorship. This included 456 Cub packs for boys of 8 to 10 years of age, 907 Scout troops for boys 11 to 13 years and 237 Explorer units for young men 14 through 17. The Council reports that 67,200 American boys were Boy Scouts because fire departments made it possible.

For many years the fire service has cooperated in the sponsorship of Scout units. Last year this cooperation was represented by the "We Join Hands" program which brought support from the NFPA, the International Association of Fire Chiefs, the Fire Department Instructors' Conference, the International Association of Fire Fighters and many other organizations. Chief Albert W. Kimball of Hingham, Massachusetts, served as chairman of the Boy Scout Committee of the IAFC, which expanded its promotional program last year.

In the development of new Boy Scout units New York led all other states with a net gain of 38, followed by Michigan which gained 20, Oregon 13, Delaware 7, and New Jersey, Connecticut, Pennsylvania and Florida 6 new units each. In a national survey conducted by the Council, Delaware was reported to have led all states in the percentage sponsorship of units; in other words, Delaware has 57 fire departments sponsoring a total of 17 units for a percentage of 29.8. New Jersey and New York rank next with 23.1 and 20.7 percent respectively. New York, Pennsylvania, Ohio and Illinois in that order numerically sponsor the largest number of units. Utah was the only state which did not report fire department sponsorship of a Boy Scout unit.

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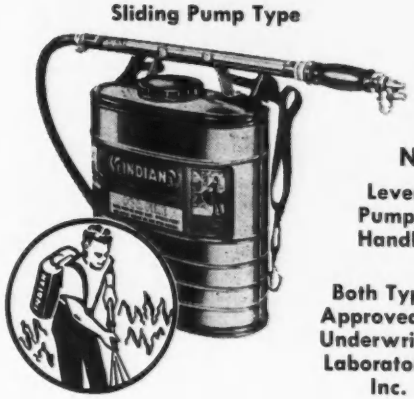
THOUGH MAN O' WAR CAMPAIGNED ONLY AS A 2- AND 3-YEAR OLD, HE WON 20 OF 21 RACES...TO LATER BE NAMED "HORSE OF THE HALF CENTURY"!

HIS MIGHTY STRIDES COVERED 27 FEET!

INDIAN FIRE PUMPS Were Smashing Fires 30 Years Ago

No. 90 INDIAN
Sliding Pump Type



It's another long stride from the first back-pack pumps we produced to the super efficient **INDIANS** of today . . . they are better, sturdier and more effective than ever before, with the most modern improvements.

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NFPA Annual Meeting

THE 62nd NFPA Annual Meeting will be held at the Palmer House, Chicago, Illinois, May 19 to 23. The April issue of *Fire News* announces that sessions will begin on Monday morning and will continue through Friday afternoon. Firemen in uniform can attend the sessions without paying the registration fee.

The Aviation Seminar and the Fire Marshals' Section will be conducted simultaneously beginning at 9:45 A.M. on Monday. The Seminar will feature discussion of protecting naval shore establishments, what missiles mean to the fire fighter, fire hazards related to the movement of cargoes and baggage in commercial air transportation, design consideration for crash trucks and other timely subjects. Topics to be covered in the Fire Marshal discussions include basement sprinklers, handling the amateur rocketry problem, controlling tank leakage and juvenile fire prevention.

The first general session, beginning on Tuesday morning at 9:00 A.M., will include reports of officers and directors of the Association and two feature addresses. The Society of Fire Protection Engineers will have a luncheon at noontime sponsored by the Chicago Chapter.

The second general session on Tuesday afternoon will feature reports by committee chairmen and feature addresses by top fire protection authorities. On Wednesday the electrical session and the third and fourth sessions will be held. The fourth general session will feature an address by Donald S. Charles, president of the International Association of Fire Chiefs.

Three other general sessions will be held on Thursday and Friday and will include a number of feature addresses and reports of NFPA committee chairmen who will present recommended changes in NFPA technical standards. Program items of interest to fire fighters include discussion of the burning of an abandoned town by the National Research Council of Canada, the Nevada bomb test fire effects, current influences on water supplies for fire protection, hotel fire safety, fire problems of motor freight terminals, and fires and accidents with nuclear materials.

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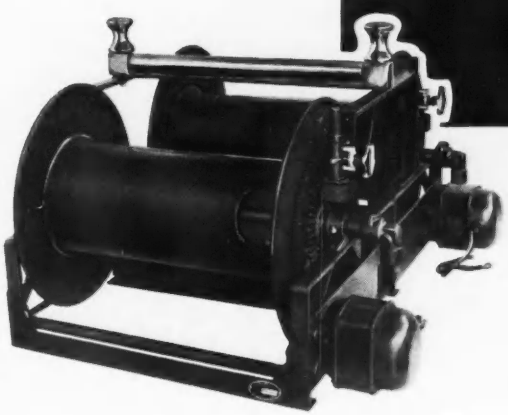

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Fire School Dates

California: A Fire and Arson Investigation Seminar will be held at the University of California, Berkeley, June 16–20. For information write to Thomas S. Ward, Supervisor of Fire Training, Bureau of Industrial Education, State Department of Education, 721 Capitol Avenue, Sacramento.

Colorado: Colorado State Firemen's Association will hold its annual Tournament and Fire School June 18–21 at La Junta. Write to Arthur J. Becker, Secretary, Colorado State Firemen's Association, 2224 South Stuart Street, Denver 19.

Connecticut: Annual Connecticut Fire College will be held in New Haven, June 2–7. Write to Roy W. Adams, Director, Vocational Training Field Service, 490 Capitol Avenue, Hartford 6.

Florida: Florida State Fire College will be held September 8–October 3. Special classes will be held in fire pump maintenance, June 9–13, June 16–20. Write to W. H. Barnett, Superintendent, Florida State Fire College, Box 785, Ocala, Florida.

Illinois: Annual Illinois Fire College will be held June 9–12 at Champaign. Write to R. K. Newton, Supervisor of Firemanship Training, 116 D Illini Hall, University of Illinois, Champaign.

Indiana: Indiana State Firemen's Training Program will feature the Industrial Fire Course, June 4–6. Write to Professor Shelby Gallien, Director, Public Safety Institute, Purdue University, W. Lafayette, Indiana.

Iowa: Iowa State College, Ames, will be the location for Iowa State Fire School, June 17–20. Write to Keith Royer, Supervisor, Firemanship Training, 110 Marston Hall, Iowa State College, Ames, Iowa.

Kentucky: A new course on fire fighting tactics will be added to the present curriculum of the Kentucky Fire School, June 3–5, at the University of Kentucky. Write to J. L. Thompson, Chairman, Fire School Committee, 940 Starks Building, Louisville 2, Kentucky.

Maryland: Fire training courses include Pump School Series, June 6–7, 12–13. Write to Robert C. Byrus, Director, Fire Service Extension, Box 85, College Park, Maryland.

Michigan: 30th Annual Fire College will take place June 17–20 in Ann Arbor. Write to Supervisor Francis Hartman, Firemanship Training, University of Michigan, 1610 Washtenaw, Ann Arbor, Michigan.

New Mexico: The New Mexico State Firemen's Association will hold its annual meeting in Deming, June 9–11. Chief Dannie Simonds of the Deming Fire Department will be host.

Ohio: Classes will be held in Lyndhurst, June 14–15. For more information write to Charles J. Getz, Coordinator of Fire Service Training, 216 East Butler Street, Loudonville, Ohio.

Oklahoma: Fire Hazard Control Short Course for June 16–27 at Oklahoma State University, Stillwater. Write to R. J. Douglas, Head of Fire Protection Department, Oklahoma State University, Stillwater, Oklahoma.

Pennsylvania: The Pennsylvania Fire School, through Nov 1, will feature six distinct courses within each training cycle. The 20th Annual State Fire School will be held at Lewistown, August 4–8. Write to Director Arthur W. Espey, State Fire School, Box 631, Lewistown.

South Dakota: State Firemen's Association will hold its fire school June 8-13 at Spearfish, South Dakota. Write to Francis W. Pyncheon, Secretary, South Dakota Firemen's Association, P.O. Box 590, Pierre, South Dakota.

Tennessee: State Fire Service will hold its annual state-wide school August 18–23 at the State Fire Training Center, Middle Tennessee State College, Murfreesboro. Write to Homer S. Elkins, Director, Tennessee State Fire Service School, 215 Chestnut Street, Chattanooga, Tennessee.

Virginia: Third Annual Firemen's School will be held June 23–27 at Williamsburg, Virginia, for officials and members of the fire fighting profession. Write to Chief Elliott W. Jayne, Director, Virginia Firemen's School, Williamsburg, Virginia.

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Under certain conditions a custom apparatus may be desired.

However, before you draw up specifications it will pay you to check and compare, for example, a DARLEY CHAMPION PUMPER on a modern, tilt-forward, cab-over-engine chassis by Ford as illustrated, or on an International chassis with the same features.

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Engineered with short wheelbase for tight turning circle, easy steering, quick maneuverability, maximum visibility for safety.

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Class A Pumpers ranging to 1000 GPM capacities with high pressure fog. Commercial chassis or complete custom apparatus.

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50 YEARS of FRIENDLY SERVICE — 1908 to 1958

NFPA "Quarterly" Reprints

REPRINTS from recent editions of the NFPA *Quarterly* are now available. "Fires and Fire Losses Classified, 1956," designated as pamphlet Q51–4, is a 6- by 9-in., 12-page booklet priced at 25 cents per copy. It contains a detailed breakdown on the number of fires by occupancies and causes, fire losses by causes, estimated distribution of fire losses by occupancies, estimated U. S. fire losses by causes and fires per 1,000 population, and fire loss per person as reported by fire marshals. Quantity discounts are given for orders exceeding 25 copies.

"A Place for Old Folks to Live," by NFPA Fire Record Manager Chester I. Babcock, is a 20-page pamphlet designated Q51–5. Priced at 50 cents per copy, this illustrated booklet is an interesting report on fires in nursing homes with particular attention given to the nursing home fires that caused fierce loss of life in recent years. Since much legislation is currently being processed for nursing home fire safety, this pamphlet should provide valuable guidance to fire department personnel interested in the subject.

"Constructing Dwellings for Life Safety" is a 12-page pamphlet containing a report of NFPA Engineer Richard E. Stevens. It outlines some of the principal problems of life safety in dwellings, based on special studies made by Mr. Stevens of the fire record in these occupancies. Designated Q51–6, this pamphlet is also available at 25 cents per copy with discount for quantity purchases of 25 or more.

Got a Good Motto?

FIREMEN magazine recently received a request for a motto or creed that would typify or embody the duties of a fire fighter. Roger L. Cerioni, 529 East St. Elmo Avenue, Colorado Springs, Colorado, is employed with the Fire Protection and Aircraft Rescue Branch of the U. S. Air Force Academy at Colorado Springs. He has asked for suggestions from FIREMEN readers on this subject.

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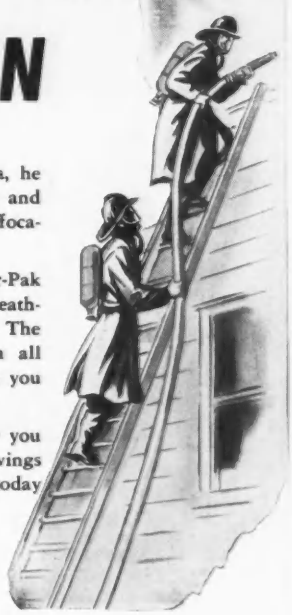

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But there is a sure way to win! Wear a Scott Air-Pak and whatever the breathing hazard, you will be breathing cool, fresh air regardless of the atmosphere. The SCOTTORAMIC Mask gives unlimited vision in all directions. It doubles your protection by keeping you out of danger zones.

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NAS-NRC Fire Conference

A NUMBER of NFPA members participated in a Conference for a discussion of "mass fires" under the auspices of the Department of Engineering of the University of California at Los Angeles, just following last year's NFPA Annual Meeting in Los Angeles. This was the Second Fire Research Correlation Conference sponsored by the National Academy of Sciences-National Research Council Committee on Fire Research.

A report of the meeting is now available and may be obtained from the Fire Research Committee, National Academy of Sciences-National Research Council, 2101 Constitution Avenue, N.W., Washington 25, D. C. ("Methods of Studying Mass Fires," 60 pages, 7 by 9¾ inches, paper cover, $1.00).

The Conference included a group of invited municipal fire department and forest fire service representatives and one or two industrial fire protection people. This group described various features of the problem of large fires in industry, in the cities and in the forests, for the purpose of getting the reaction of a number of individuals concerned with operations research who had also been invited to participate. The report is a concise review of the technical topics presented by the fire experts and statements of the reaction of the analysts to the problem.

Two phases of this document are worth particular mention.

One is a very helpful list of questions bearing on the type of needed quantitative knowledge about how a fire burns and how it spreads. This was supplied by Professor Howard W. Emmons of Harvard University and the Massachusetts Institute of Technology who is a member of the NAS-NRC Fire Research Committee and served as one of the analysts at the Conference.

The other is a comment from the conclusions written by the Chairman of the Conference, Alexander W. Boldyreff, a mathematician of the Rand Corporation of Santa Monica, and visiting professor of engineering at the University of California, Los Angeles. He points out that the descriptions of mass fires by experienced eyewitnesses, whether forest, urban or industrial, indicate the presence of definitive repetitive patterns. This suggests, he says, that great benefit should be derived from bringing the methods of operations research to bear on the problems of fire control. He suggests that the fire department and forest service agencies themselves initiate this operations research in their own organizations. (*See May, 1957* FIREMEN — Ed.)

This Conference is one of the results of the appeal a few years ago of some fire service leaders for help from scientists. It is significant that the scientists are willing to help. However, they feel that the initiative for most of the technical work required to improve the control of large fires lies within spheres of action of the fire departments and other fire service organizations.

From one chief to another . . .

CHIEF ELMER KLINE
SYLVANIA, OHIO, SAYS:

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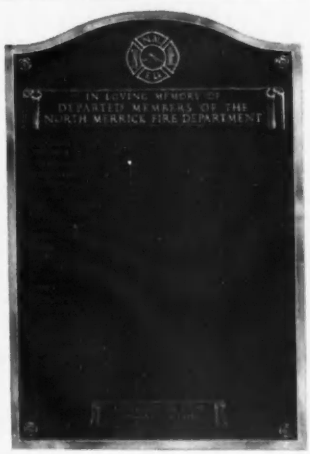

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Membership Report

NFPA Welcomes the following fire departments and chiefs who recently have joined the Association. NFPA fire department membership now totals 2,408, with 24,392 fire fighters receiving FIREMEN magazine.

Alabama: Attalla Fire Department, Attalla.

Alberta: Westlock Fire Department, Westlock.

British Columbia: Greenwood Fire Department, Greenwood; Terrace Volunteer Fire Department, Terrace.

California: Downey Fire Department, Downey.

Delaware: Frederica Volunteer Fire Company, Frederica.

District of Columbia: Morningside Volunteer Fire Department, Inc., Washington 23.

Florida: Hialeah Fire Department, Hialeah.

Idaho: Lewiston Orchards Fire Protection District, Lewiston.

Illinois: New Salem Fire Protection District, Adair.

Indiana: Black Oak Volunteer Fire Department, Inc., Gary.

Maryland: English Consul Volunteer Fire Company, Inc., Baltimore 27; Rosedale Volunteer Fire Company, Inc., Baltimore 6; Bowman's Addition Volunteer Fire Company, Inc., Cumberland; The Volunteer Fire Department of Mt. Rainier, Maryland, Mt. Rainier.

Michigan: Genesee Township Fire Department No. 1, Genesee.

Minnesota: Edina Fire Department, Edina.

Missouri: Cape Girardeau Fire Department, Cape Girardeau.

New Hampshire: Tuftonboro Fire Department, Tuftonboro.

New York: Maine Fire District No. 1, Maine.

North Carolina: Rutherfordton Fire Department, Rutherfordton; Statesville Fire Department, Statesville.

Ohio: Jackson Township Fire Department, North Jackson.

Oregon: Empire Volunteer Fire Department, Empire.

Pennsylvania: Prospect Park Fire Company No. 1, Prospect Park.

Saskatchewan: Gravelbourg Volunteer Fire Brigade, Gravelbourg.

Virginia: Penn-Daw Volunteer Fire Department, Alexandria; Harrisonburg Fire Company No. 1, Harrisonburg; Norton Fire Department, Norton.

West Virginia: Halltown Paperboard Fire Department, Halltown (Special).

Wisconsin: Cedar Lake Volunteer Fire Department, Milwaukee.

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2. Depreciation of equipment for tax purposes is rapid, and within a relatively short period, you own a going depression-proof business that actually runs itself.

NO PREVIOUS experience is necessary. We offer advice, store planning, training and advertising... and we will finance up to 80% of the necessary equipment. We'd like to show you some coin-metered laundry stores in your area and give you full particulars on their operation... without obligation, of course. Just fill out the quick-action coupon below.

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The Super Beacon Ray revolves more slowly than conventional beacons, almost doubling the beam's effectiveness. Having two lamps more than the ordinary beacon offsets the slow rotation and provides proper flash frequency and interlude for maximum results. The Super Beacon Ray #174 is identical in general appearance and dimensions to the famous, original Beacon Ray. Available for permanent roof mounting, for pipe mounting, or for demountable applications. Write for Bulletin No. 22 today.

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"Workingest" Ladder Company?

A READER of FIREMEN magazine mentions that the Chicago, Illinois, Fire Department features a ladder truck company "that is proud to be known as the world's 'runningest' fire company." According to Private W. L. Kugelman now in the military service at Fort Monmouth, New Jersey, Chicago's Hook and Ladder Company No. 11 deserves this title. Captain Grant Cloney commands this busy ladder company, which recently moved into new larger quarters. Private Kugelman left Squad Company No. 11 to serve his tour of duty with the Army and intends to return to the Chicago Fire Department when his military service is completed.

Fire Prevention for Hospitals

A NEW edition of "How Administrators Can Plan for Hospital Fire Emergencies" has been issued by the Federation of Mutual Fire Insurance Companies, Chicago 6, Illinois. The 16-page, illustrated booklet outlines a fire emergency planning program that can be adapted by hospitals of any size and also describes basic fire prevention measures. All hospitals within the United States will receive a free copy. The booklet, first published in 1950, has been brought completely up to date with photos of recommended nurses' carries and suggestions for removing patients from hospitals. Copies can be obtained free by writing directly to the Federation at 20 North Wacker Drive, Chicago 6, Illinois.

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1936 Dodge Ladder Truck — excellent condition — mileage less than 3000. Equipped with 150 gallon booster tank, 150 feet 1-inch booster hose, Hale type H booster pump, 2-way turret nozzle, siren, spotlight, hose lights, hose bed for 800 feet 2½-inch hose.

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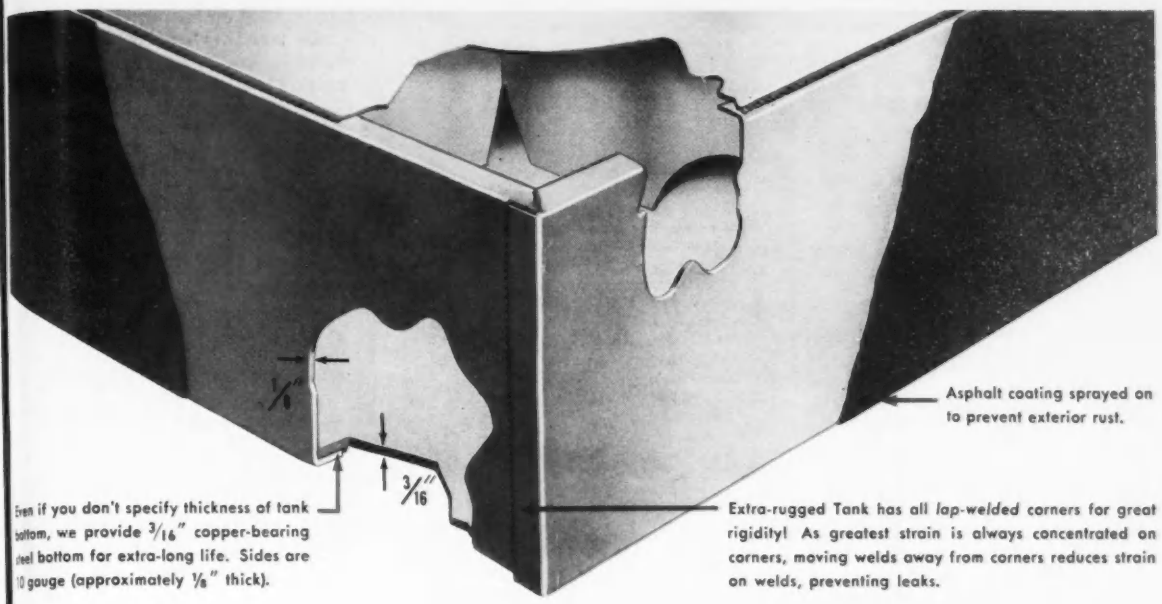

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Asphalt coating sprayed on to prevent exterior rust.

Extra-rugged Tank has all *lap-welded* corners for great rigidity! As greatest strain is always concentrated on corners, moving welds away from corners reduces strain on welds, preventing leaks.

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For example, corners and seams on all American booster tanks are *lap-welded* — not corner welded. This greatly increases rigidity — resists twisting strain — prevents troublesome leaks. *And whether you think to specify or not, all* tank bottoms are 3/16" copper-bearing steel for extra years of trouble-free life. Remember — 3/16" is *one-and-one-half times thicker* than the 10 gauge bottoms usually furnished.

Other standard features include: Multiple drains on pump, all connected to a single, central valve — so a hurried fireman *can't* "forget" to open or close one of several drains.

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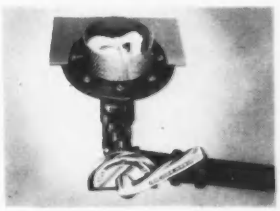

Tank Outlet Sump has large bolted flange — *eliminates* need for costly removable top and resulting gasket problems, or sloping bottom with reduced capacity. Anti-swirl baffles keep air out, prevent loss of prime, and insure complete tank drainage.

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this month's

EQUIPMENT NEWS

For your ambulance and rescue units, get the new free catalog on Washington ambulance cots and stretchers from *Washington Products Company*, Washington Court House, Ohio. . . . . Four fine fog films are described in a new descriptive folder distributed by *Steve Smith Pictures*, 623 Kansas Avenue, Topeka, Kansas. . . . Protect yourself while driving to emergencies with the "Defender" spotlight, a combination car spotlight and 360° revolving light now available from the *Sireno Co., Inc.*, 214 William St., New York 38, N. Y. . . . . Add this name to your list of suppliers and builders of service, crash and ladder trucks as well as water tank cars and squad and emergency cars: *Sharpsville Steel Fabricators, Inc.*, Sharpsville, Pa. . . . . Before furnishing headquarters and other station houses, write to the *Monroe Company*, 277 Church Street, Colfax, Iowa, for a catalog of well-known folding tables and chairs.

Wirt & Knox, 23rd and York Streets, Philadelphia 32, Pennsylvania, has a new brochure describing its "continuous hose flow reel." Write for a free copy. . . . A handy model selector chart for choosing emergency pumps is available from *Barnes Manufacturing Company*, Mansfield, Ohio. It covers gasoline, electric and belt-driven pumps designed to meet fire protection needs of municipal fire departments and industry. For a free copy of this Data Sheet No. 348, write to the Company at the above address. . . . *Allied Safety Equipment Company, Inc.*, 361 M and M Building, Houston, Texas, has been appointed new sales, parts and services dealer for Four Wheel Drive Auto Company's apparatus in the Texas Gulf Coast area. The Company has also announced that three new FWD truck dealers have been appointed: Ray Long Equipment, Inc., Columbus, South Carolina; Motor Fleet Service, Inc., Indianapolis, Indiana; and J. D. Motor Service, Houston, Texas.

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Booklet on Hose

Hewitt-Robins, Inc., 666 Glenbrook Road, Stamford, Connecticut has published a new 8-page illustrated booklet on municipal fire hose. It contains a description of various types of hose made by the Company, including double and single jacket, suction, high pressure and chemical booster hose. Description includes construction, size, weight, strengths and lengths of hose available. Copies of the book may be obtained free from the Company.

Lightweight Ladder

A new ladder, lightweight and a non-conductor of electricity, recently has been introduced on the West Coast market by the Hopfeld Industrial Manufacturing Company, 732 A Street, San Rafael, California.

The HIMCO ladder, up to 28 ft. in length, is made with RCI's 8006 Polylite polyester resin and its rungs are bonded with 6140 Polytool epoxy resin. Fiberglass construction is used for both rungs and side rails.

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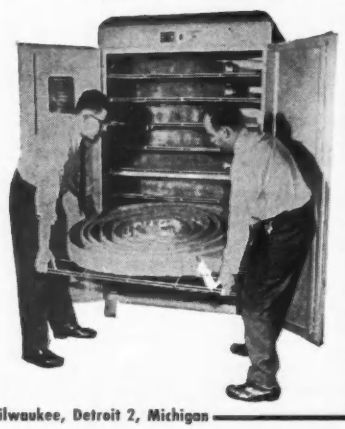

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The CIRCUL-AIR Corporation, 575 East Milwaukee, Detroit 2, Michigan

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"AMERICA'S BEST FIRE EQUIPMENT"

TWO INLET MULTIVERSAL

Light weight — 55 lbs. Handwheel adjustment. Perfectly balanced. Relieves manpower for other duties. Low friction loss. Akron stream shapers for non-feathering stream. Can be used with FOG-HOG for complete versatility. Style #491.

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With all-round indicator for preselection of stream. Tremendous gallonage and projection. Use on ladder pipes, deluge guns, deck pipes. All degrees of fog, straight stream or shut-off instantly available. Bind-free operation at all pressures. ROCKER LUG—available in 500, 700, 1000, 1350 and 2500 G.P.M. sizes.

"P.D.Q." NOZZLE

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Adjustable through all angles of solid fog and straight stream. Akron quality ball shut-off. Guaranteed gallonage. Positive stream positioning indicators. Swiveling "ROCKER LUG" base — handle is always up. Corrugated no-slip grip. 1", 1½" and 2½" sizes.

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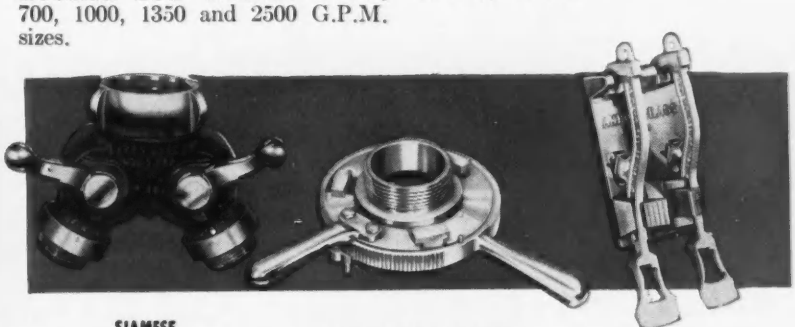
Drop-forged for strength. Light weight — perfect companion for light weight hose. "ROCKER LUG" —Higbee Indicators. Tapered hose bowl — stays on hose under all pressures. Unconditionally guaranteed to give complete satisfaction. Style #88



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AKRON BRASS MANUFACTURING CO., INC.
WOOSTER, OHIO

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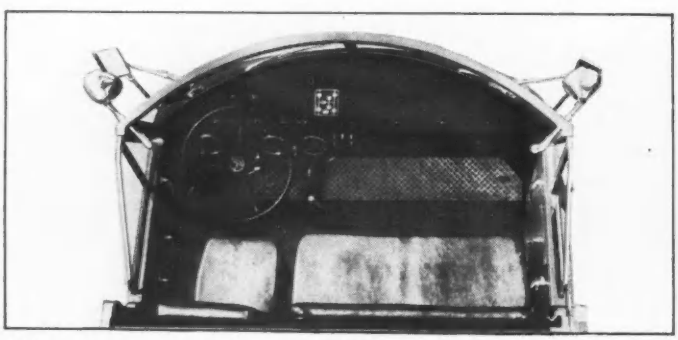
The new modern wide cab (76 inches) with the wrap-around safety plate glass windshield improves visibility for the driver. Windshield is 3 inches higher for increased weather protection and higher visibility angle. Two twin seal beam headlights for greater safety in night operation. Two red warning lights and two amber directional lights are standard.



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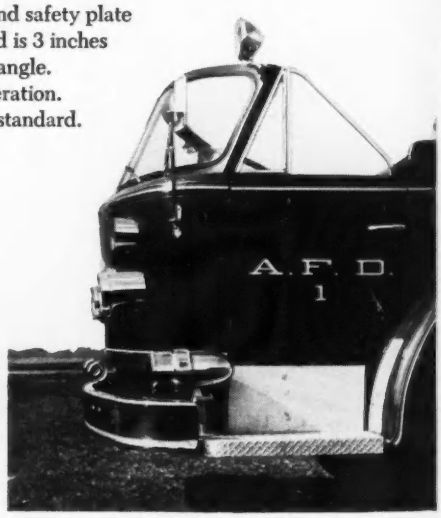
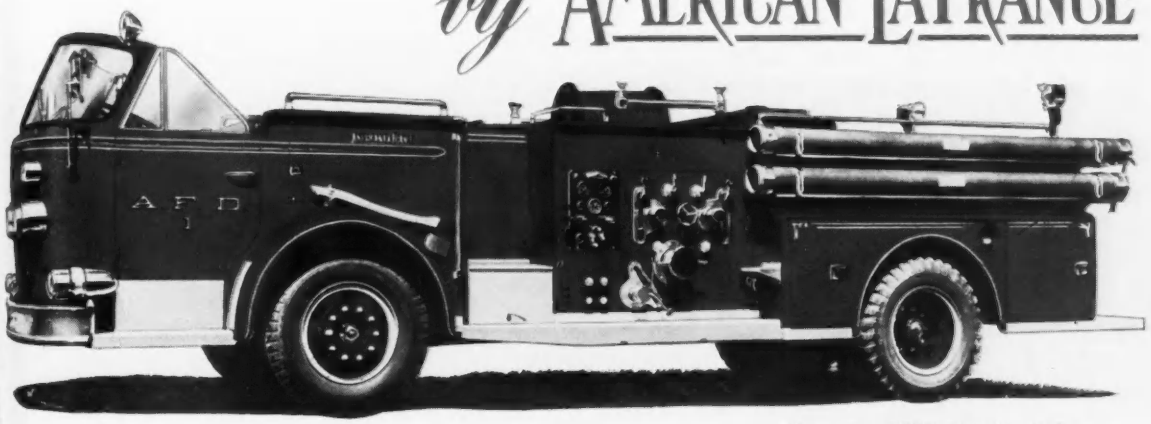


New dynamic silhouette cab, open seat or closed for streamline appearance. New heavy duty front bumper. Twin supports for rear view mirror.

NEW FIRE ENGINE

by AMERICAN LaFRANCE



Spartan 1000 G.P.M. Deluxe

The New *900* Series . . . CUSTOM OR DELUXE

IT'S A FIREMAN'S FIRE ENGINE!

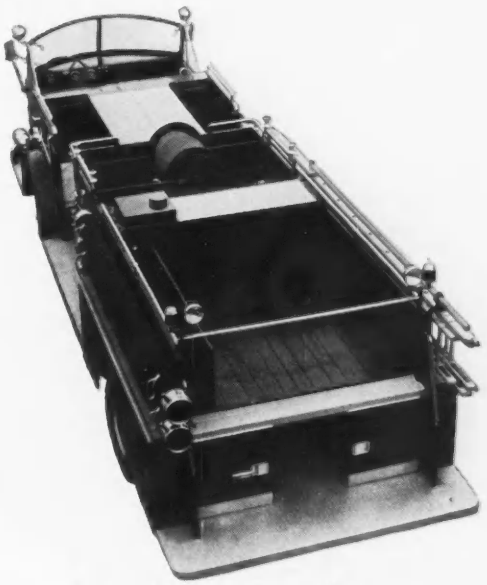
Lower in height, easier to handle; short turning radius (only 25 feet); no increase in overall width or length; eight compartments, six are enclosed; simplified pump controls; Twinflow pumps now equipped with ball type discharge gates, full 2½ inch flow passage for higher efficiency. Handle type lock. Pumps available in all N.B.F.U. standard capacity ratings, Class A; new positive displacement primer with manual control, no solenoid or push button switches; new pump control instrument panel; hinged battery covers; rounded corners on body and side compartments.

New from every angle!

It has all the features for greater operating ease and accessibility for maintenance. Unexcelled performance and riding quality. There are 8 different engines for a complete range of power selection including the new 300 B.H.P., V-8. A new torque converter is also available to eliminate the clutch and gear shifting.

AMERICAN LaFRANCE CORPORATION
ELMIRA, NEW YORK, U. S. A.

LaFRANCE FIRE ENGINE—FOAMITE LIMITED
TORONTO, 9, ONTARIO, CANADA



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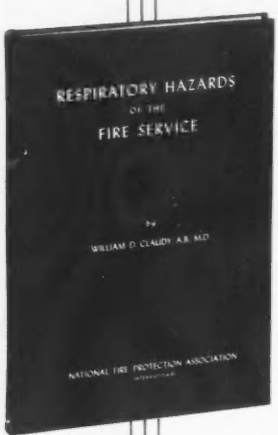

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